University of Alberta

Development and Evaluation of Inquisitivism as a Foundational Approach for Web-Based Instruction

By

Dwayne Harapnuik

©

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ABSTRACT

This study was conducted to determine if inquisitivism, an adaptation of minimalism, is an effective approach the design and delivery of a university level online course. Inquisitivism is an approach for designing instruction that shares many of the same principles of minimalism and other constructivist approaches, but is unique in that its two primary or first principles are the removal of fear and the stimulation of an inquisitive nature. During the design and development of an online course many of the traditional face-to-face (F2F) approaches for the development of instruction were found lacking or simply did not address the specific needs of the online learner. Therefore, inquisitivism grew out of a need for an instructional and design approach for web-based instruction and a need for a method of web-based instruction delivery. The approach evolved during the design and delivery of an online full credit university course.

To assess a course based on the inquisitivist approach, a quasi-experimental design was used in which students from an online course were compared to a comparison group of students in a traditional (F2F) setting to determine if students in the online course scored as high or higher than the comparison group in the reduction in fear of technology, achievement in their final project assignments, and satisfaction in their learning experience. In addition, a survey was conducted to determine if inquisitivism is more appropriate for learners with specific personality types.

The results of Analysis of Variance (ANOVA) tests, t-tests, and other statistical procedures revealed that the online students scored significantly higher on

their final project scores and there was no significant difference in their satisfaction with their learning experience from their F2F counterparts. Finally, the results revealed that there was no significant difference in final project scores across the personality types tested.

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CHAPTER ONE: INTRODUCTION

Towards an Effective Approach to Adult web-based Instruction

In this study I attempted to determine if inquisitivism, my adaptation of minimalism, is an effective learning approach for adult learners who are required to learn new information technologies in a web-based setting. More specifically, the supposition that I tested is that inquisitivism can be used for the generation of a hypothesis about instructional design of a university level online course; in particular, that students completing this course will have a reduction in their fear of technology, learn the course material, and have a positive learning experience. In addition to examining these variables, I also attempted to determine if inquisitivism is more appropriate for learners with specific personality types.

Adult Learners Fear of Technology and Loss of Curiosity About Learning.

In the past 10 years of personal experience with, and observation of, adult learners in the classroom and online, and through the delivery of many different technology based course seminars, tutorials, and lectures online, I have observed a common problem. Many adult learners have lost the natural inquisitiveness toward new learning experiences that most children demonstrate in abundance. Abbott and Ryan (1999) have observed this loss of inquisitiveness as well and have argued that children are born with an array of predispositions that enable them to adapt to vastly different circumstances and experiences and that during this past century our formal school system has struggled to provide learning environments that enhance these intellectual and social predispositions. Toddlers and young children of pre-school age are accustomed to exploring their world and embracing new experiences with vigor and with little or no fear of the consequences of their actions. Through their formative years children learn how to walk, talk, and interact socially through a process of trial and error (Thorndike, 1932; Skinner, 1974).

Most healthy and well-adjusted young children investigate their immediate environment through a fearless trial and error approach that is often extended to most

other learning experiences (Piaget, 1963; 1970; Piaget & Inhelder, 1969). For example, young children quickly embrace technology and are seldom limited by fear of the technology (Tapscott, 1997). Watching a six or seven year old learn a new computer game by clicking on every button or watching a similarly aged child use the Internet with ease is evidence that there is little or no fear of technology holding back these children.

In contrast, many adults demonstrate fear and apprehension toward new experiences, especially new learning experiences dealing with technology (Tapscott, 1997). Turkle (1999) suggested this fear or apprehension may be related to the difficulty that today's adults have with the notion of technology's aliveness. Turkle posited that since today's adults grew up in a psychological culture that equates the idea of unitary self with psychological health, being forced to interact with technology on an intimate level is tantamount to being asked to make a theoretical choice in favor of the computational process which they often do not understand and a choice against biology which they do understand. Because of this fear or apprehension, these adult learners can lack the predisposition towards learning, which is the key or foundational aspect of what Bruner (1966) stated a theory of instruction should address. The other aspects that Bruner (1996) insisted an effective instructional theory or approach should include are: the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner, the most effective sequences in which to present material, and the nature and pacing of rewards and punishments. While it must be acknowledged that Bruner specifically was addressing learning in children and youth, the lack of a predisposition towards learning affects learning in all people.

Constructivist Approaches Like Minimalism are Effective Foundations for Designing Technology Instruction.

There is a body of literature that calls for a change in the way we design and deliver educational material: *Objectivism vs. Constructivism: Do we need a new paradigm?* (Jonassen, 1991), *web-based distance learning and teaching: Revolutionary invention or reaction to necessity* (Rominiszowki, 1997), *The Learning*

Revolution (Dryden & Vos, 1994), *Transforming learning with technology: Beyond modernism and post-modernism or Whoever controls the technology creates the reality* (Jonassen, 2000), and *Beyond reckoning: Research priorities for redirecting American higher education* (Gumport, Cappelli, Massey, Nettles, Peterson, Shavelson & Zemsky, 2002). The authors of these works argue that traditional forms of instruction are no longer effective. There are also claims that the deficiencies in the outcomes of learning are strongly influenced by underlying biases and assumptions in the design of instruction (Rand, Spiro, Feltovich, Jacobson, & Coulson, 1991). The systems approach to instructional design may be the primary factor contributing to the poor outcomes of instruction, since it is still the predominant instructional design assumption used throughout most of education (Carroll, 1990; Dryden & Vos, 1994; Jonassen, 1997; van der Meij & Carroll, 1995).

The systems approach is based on the assumption that learners are passive receptacles for information that the instructor (teacher or instructional media) relays (Jonassen, 1996). Educators are beginning to recognize:

> that our dominant paradigm mistakes a means for an end. It takes the means or method called "instruction" or "teaching" and makes it the end or purpose.... We now see that our mission is not instruction but rather that of producing learning with every student by whatever means work best. (Barr & Tagg, 1995, p. 14).

Similarly, Carroll (1990) argued against the notion that learners are passive receptacles and made a case against the systematic approach to learning in his book the *Nurnberg Funnel*. The title refers to the legendary funnel of Nurnberg that was said to make people wise very quickly by simply pouring knowledge into them. The title is also a somewhat sarcastic accusation against traditional forms of instruction.

In the *Nurnberg Funnel,* Carroll presented the results of ten years of empirical research that showed that newer methods of instruction based on constructivism and other cognitive theories or approaches perform much better than the commonly used systems approach to instruction. Constructivists posit that knowledge is constructed,

not transmitted and that it results from activity. They also hold that knowledge is anchored in the context in which learning occurs and that "meaning making" is in the mind of the knower, which necessitates multiple perspectives of the world (Jonassen, 1990, 1991, 1997). Meaning making is prompted by problems, questions, confusion or even disagreement and this meaning making is generally distributed or shared with others through our culture, tools and community (Jonassen, Peck, Wilson, 1998; Jonassen, 1990; 1991; 1997; Kearsley, 1997; Strommen & Lincoln, 1997; Vygotsky, 1978).

Carroll's (1990) research revealed that instruction based on guided exploration (GE) was significantly more effective than the traditional systems approach. Out of a group of twelve participants at the IBM Watson research facility, six used (GE) cards and the other six were given the traditional systems-style manual (SM). Both groups were expected to complete their respective training by working through either the drill or practice of the systems-style manual, or the twenty-five GE cards. Both groups were evaluated by being required to complete a real task of transcribing a one-page letter into a word processor and printing it out. The participants were asked to think out loud, and research associates recorded their thoughts. In addition, the sessions were video taped so that all the data could be collated and taxonomized to develop a qualitative picture of how GE learning was contrasted by SM learning.

The use of guided exploration cards resulted in much faster initial learning and more successful performance in the achievement task. The learning time for the GE participants, on average, was less than half of what it was for their SM counterparts; 3 hours and 55 minutes vs. 8 hours and 5 minutes (Carroll, 1990). Similarly, GE participants spent half as much time on the achievement task as did their SM counterparts, and the GE group achieved much greater success than the SM group. The GE group spent more time working on the actual system trying out more operations than the SM group who spent most of their time reading about the system. Not only did the GE group work effectively with the operations needed to complete their task, they experimented with many more aspects of the system.

Carroll (1990) argued that the GE group was more successful because they worked with the system itself and took responsibility for their own learning. They demonstrated much more initiative and used errors as learning experiences. In contrast, the SM group often became trapped in error loops created by the systems-style manual. The problems the SM group experienced with the instructional material hindered or, in some cases, even prevented the learners from working with the system they were attempting to learn.

Carroll, (1990, 1998) argued that there is a need for a change in the way instruction is developed and delivered. An examination of the learning theory literature also reveals many theories and approaches to learning. A partial list includes structuralism, functionalism, connectionism, behaviorism, objectivism, and constructivism. When you add all the other theories that are not suffixed with an "ism" (classical conditioning, information processing model, etc.) there are over fifty learning theories and approaches.

Perhaps one reason that there are so many theories and approaches is that their authors have also sought out theories to substantiate or validate their research and they, too, found that there was no single theory or approach that accurately supported or represented their work. When a suitable comprehensive theory or approach is not found, it is not uncommon for the researcher to propose new concepts and combine elements of other theories and approaches into a new approach that could be applied specifically to a unique situation. This partially explains the creation of the inquisitivist approach.

Different Personality Types are More Suitable for Different Forms of Instructions

Students learn in many different ways and have different characteristic strengths and preferences in the way they take in and process information. Some students respond strongly to visual forms of information, others respond to verbal information. Some students focus on facts, figures and prefer theories and mathematical models. Others prefer dynamic environments where they can learn

actively, interactively collaboratively, while others prefer a quieter more introspective environment where they can excel individually (Felder, 1996; Felder & Silverman, 1988; Kearsley, 1997; Keirsey, 1998; Kolb, 1984).

Instructional methods and approaches also vary. Some instructional environments focus on principles and others on application. Some environments emphasize memorization while others stress understanding. Some environments require that a systematic approach be followed and others encourage students to construct there own learning. Felder and Silverman (1987) argued that: "How much a given student learns in a class is governed by that student's native ability, and prior preparation, but also by the compatibility of their learning style and the instructor's teaching style" (p. 674).

Finding a balance between instructional approaches that suit the instructor and the student can be a challenge. Developing an instructional approach for web-based instruction that also finds a balance between the instructor's designed learning environment and the student's learning style is perhaps even more challenging because of the added dynamic of the format of delivery and the lack of the advantages of a face-to-face (F2F) setting. An effective learning environment should help students build skills in their preferred and less preferred modes of learning by addressing the unique learning requirements at least part of the time. Felder (1996) referred to this as "Teaching around the cycle" (p. 18). By teaching around the cycle instructors not only challenge learners to build on their strengths, but also build on their weaknesses.

Rationale, Method and Significance

As was discussed earlier, there is a move toward developing instruction based on the learning theory of constructivism. Minimalism and, subsequently, inquisitivism, can be viewed as continuations of this move. In this study, I will attempt to assess inquisitivism to see if it is an effective approach for an online technology centered university course. The course used is called The Internet: Communicating, Accessing and Providing Information (commonly referred to as

Nethowto; which is also the web name of the course and subsequently the nickname that was adopted by students and faculty). Measures of success in learning the course content, level of student satisfaction, and reduction in fear of technology will be used to gauge the effectiveness of the inquisitivist approach. A quasi-experimental design will be used to compare *Nethowto* students to comparison group students who studied similar material in a course that was designed and delivered using a more traditional approach of systematic instruction.

More specifically, I will assess inquisitivism's effectiveness as an approach for an online technology-centered university course by testing the following research hypothesis:

1. Students who learn the same course content via the inquisitivist-based *Nethowto* course will do better on the final project than students in the comparison group.
2. Students who learn the same course content via the inquisitivist-based *Nethowto* course will be more satisfied with their learning experience than students in the comparison group.
3. Students in the *Nethowto* will have a greater reduction in fear of technology than students in the comparison group.
4. The inquisitivist approach will be a more effective form of course delivery and instruction for the personality types (as defined by the Keirsey Temperament Sorter) than for others .
5. Students will face specific challenges as a result of the inquisitivist approach.

Delimitations

This study is delimited as follows:

- Only the use of the Internet, and more specifically the use of the WWW, for the delivery of the *Nethowto* course were included in the study.

- The study dealt exclusively with adult learners and focused on the learning of new technology through web-based instruction.

Limitations

The following limitations influence the degree to which the results can be generalized:

- Since the focus was on adult learners and the learning of new techno logy through web-based instruction in a university level technology course, the results can only be generalized to adult technology-focused instruction in post secondary institutions.
- Because the study used two extant classes, one where the instructor had designed the course using instructivist principles, and the other (*Nethowto*) which had evolved to the inquisitivist model, generalization regarding causal inferences should be limited to this study.
- A more extensive experimental design would be necessary before any generalization regarding causal inferences can be reached.

Significance of the Study

This study is an attempt to add to the research and development of existing constructivist learning theories and approaches and to perhaps lay the foundation for a new approach for technology instruction. In addition, this research is an endeavor to demonstrate that a personal method or approach can be broadened to become a useful approach for educators and, more importantly, students of technology.

This investigation will benefit the educational psychology and web-based instruction communities by adding to the body of research on moving constructivist learning theories and approaches from theory into practice.

Organization of the Thesis

Before I summarize the chapters in this study, I must explain the style and format used in this thesis. In the guide *Writing a Thesis; Substance and Style,* Van Wagenen (1991) stated that "research reports should begin immediately with a problem" (p. 121). Van Wagenen continually implores the research writer to skip the background formalities and give the reader the information they need immediately. Therefore, my introduction and the rest of this thesis follow the style and substance recommendations of Van Wagenen.

In chapter two, I will focus on learning theory and web-based instruction literature that contributed to the development and refinement of inquisitivism. In chapter three I will deal with the relationship between minimalism and inquisitivism and reveal how inquisitivism evolved from minimalism and other constructivist theories and approaches. In chapter four I will demonstrate how the ten principles of inquisitivism are applied to the creation, delivery and continual development of the *Nethowto* course. In chapter five I deal with the research design, the participants and specific measurements used to evaluate inquisitivism. In chapter six I will reveal the study results. Finally, in chapter seven I will discuss the study results and will end with an examination issues for future research and concluding remarks.

CHAPTER TWO: LITERATURE REVIEW

Two distinct areas of literature dealing with learning theory and web-based instruction will be reviewed to establish a foundational understanding of the basis for this study. This review will also describe the process that preceded and ultimately culminated in the adaptation of minimalism to an approach called inquisitivism.

Historical Overview

How we come to know what we know (epistemology) has been a topic of discussion throughout history. Acquiring knowledge or skills through experience seems to be an innate ability. That children learn how to crawl, talk, walk, and many other normal human abilities we take for granted without having to be formally taught how to learn confirms we come to know many things without any formal instruction.

Philosophers have always argued about how we come to know what we know. In *The Republic of Plato*, Socrates argued that we all have knowledge of the Forms (360, BC/1971). This knowledge has to be recalled through a dialogue between a mentor and a student; the dialectic. Aristotle acknowledged humans possess some a priori knowledge but placed a much greater emphasis on knowledge that was gained through experience with the world; knowledge gained through the senses (350 BC/1987). In the *Discourse on Method,* the rationalist, Descartes, relied strictly on reason to determine that his ability to think about thinking, indeed, verified this existence and was the one thing of which he could be certain (1641/1980).

More recent philosophers have revisited the same arguments and have offered their perspectives on this query of knowing. John Locke, in his *Essay Concerning Human Understanding*, claimed that we are born with a mind that is blank (tabula rasa); there is nothing in the mind that is not first in the senses (1689/1975). In *An Enquiry Concerning Human Understanding*, David Hume expanded this notion of relying strictly on the senses by emphasizing an empirical validation of this sense data (1748/1977).

Immanuel Kant attempted to find a path between the rationalism of Descartes and the skeptical empiricism of Hume. He posited that objective reality is known only insofar as it conforms to the essential structure of the knowing mind. Only objects of experience may be known; whereas, things lying beyond experience are unknowable, even though in some cases we assume a priori knowledge of them. He also stated that these unknowable things can neither be confirmed nor denied, nor can they be scientifically demonstrated (Kant, 1797/1964).

This debate between the rationalists and the empiricists has still not been resolved and likely will continue to be a central topic of discussion for years to come. It has also become a central topic of discussion for educators and psychologists. The pure philosophical discussion of knowing has been modified and now takes the form of the discussion of learning theories and learning approaches.

Learning Theories, Approaches and Models

Behaviorism

The empirical view of knowing, postulated by Locke, Berkeley, and Hume is at the foundation of behaviorism. Behaviorists focus only on what can be empirically observed. Hard behaviorists focus exclusively on empirical observation and claim that the mind is an unknowable black box, and one can only understand knowing and learning and all other aspects of the psyche by observing behavior. John Watson held this position and rejected theories of the unconscious mind (1919, 1928). Watson, who originated the school of behaviorism, significantly influenced the work of B. F. Skinner.

Behaviorists, like Skinner, who did not deny neurological functioning that accompanies behavior, still chose to rely exclusively on observable behavior. Skinner stated that the psychology of behavior could be understood in its own terms without reference to neurological event (1938). This emphasis on empirical evidence is foundational to the empiricist view. Although empiricists like Hume did not deny the inner workings of the mind, he simply called them "springs" (1748/1977) and did not

give much significance to their existence. Skinner also acknowledged, but played down, the inner workings of the mind:

> A behaviorist analysis does not question the practical usefulness of reports of the inner world that is felt and introspectively observed. They are clues (1) to past behavior and the conditions affecting it, (2) to current behavior and the conditions affecting it, and (3) to conditions related to future behavior. Nevertheless, the private world within the skin is not clearly observed or known (Skinner, 1974, p. 31).

Skinner also pointed out that even our demonstration of knowing must be done through a verbal behavior called language.

Operant conditioning is the name of the behaviorist theory developed by Skinner. His theory introduced the educational world to a series of concepts including: reinforcement, extinction, primary and secondary reinforcers, punishment, schedules of reinforcement, shaping, chaining behavior modification, and generalization and discrimination (Skinner, 1974). The basic operant conditioning model of discriminate stimulus, response and reinforcing stimulus, can still be found in many instructional design models used today. Skinner's programmed instruction and teaching machines are the basis for most early developments in Computer Aided Instruction (CAI). Linear programs, branching programs, and contingency contracts are still being used in many levels of instruction. "Programmed instruction has been credited by some with introducing the systems approach to education" (Heinrich, 1970, p. 123). Therefore, it could be argued that behaviorism is the foundational theory for the systematic approach to instruction.

Systematic Approach

Whether it is called the systematic approach, the systematic design model, systematic instruction, or instructional systems development, instruction based on this approach is one of the most predominant forms of instruction used today (Reiser, 1987, 2001; Reiser & Walter, 1996). The traditional systematic design model breaks down the process of creating instruction into seven basic steps (Figure 1).

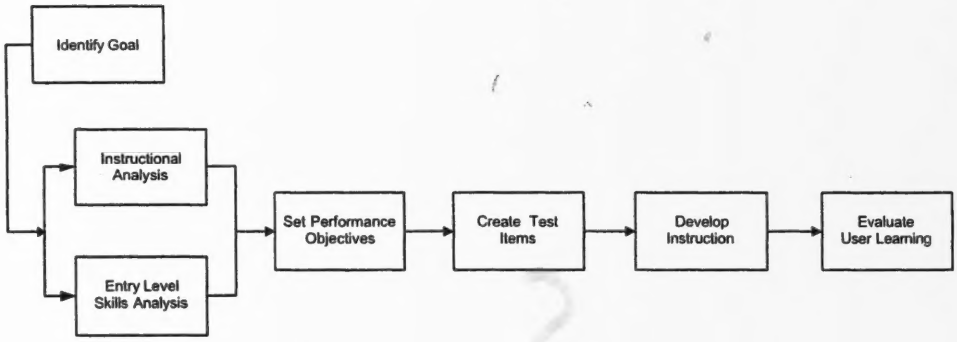

Figure 1. Traditional systematic design model

These steps should be completed in the following order (Dick & Cary, 1990: McManus, 1995):

1. Identify the instructional goal for the module in terms of terminal behaviors. What will the learner be able to do when they have finished the instruction.
2. Break that behavior down into a hierarchy of subordinate skills. What are the skills the learner will have to have to perform to reach the terminal behavior? What skills are required to perform those behaviors? And so on into the most basic levels.
3. Examine your hierarchy and determine the minimum level of skills with which you expect your learners to come to the instruction. For example, if your terminal behavior is to be able to prove a given geometry theorem, can you reasonably expect your learners to come to the instruction able to read and to perform basic calculations?
4. Determine performance objectives. These differ from instructional goals in that performance objectives are the behaviors the learner will evidence at the end of each subsection of the instruction to show that she has mastered the subordinate skills.

5. Create test items based on the performance objectives.
6. Develop the actual instruction. This step includes media selection, strategy development, and production.
7. Finally, the designer has to evaluate the effectiveness of the instruction. Can the learner actually do what the designer intended for her to do?

Some variations of this model will have nine steps (Figure 2).

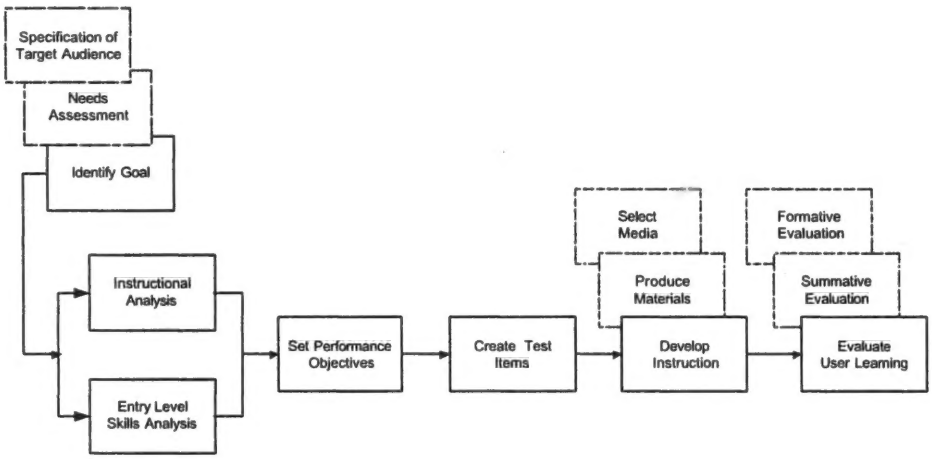

Figure 2. Enhanced view of the traditional systematic design model

Some of these enhanced models preface the identification of the goal with the specification of a target audience and a needs assessment; others will more closely resemble Gagne's (1985) universal steps of instruction:

1. Gain attention--present a good problem, a new situation, use a multimedia advertisement.
2. Identify objective--describe the goal of a lesson or task, give a demonstration if appropriate.

3. Recall prior learning--remind students of prior knowledge relevant to the current lesson. Show how knowledge is connected, provide the student with a framework that helps learning and remembering.
4. Present stimulus--text, graphics, simulations, figures, pictures, sound, etc. e.g. follow a consistent presentation style, chunking of information (avoid memory overload, recall information).
5. Guide learning--presentation of content is different from instructions on how to learn. Should be simpler and easier than content. Use of different channel.
6. Elicit performance--practice, let the learner do something with newly acquired behavior, practice skills or apply knowledge.
7. Provide feedback--show correctness of the trainee's response, analyze learner's behavior, or let him/her do it, maybe present a good solution of the problem.
8. Assess performance--test, if the lesson has been learned. Also, give general progress information.
9. Enhance retention/transfer--inform the learner about similar problem situations, provide additional practice. Put the learner in a transfer situation. Maybe let the learner review the lesson.

Irrespective of the specific model, the standard instruction systems development view can include the following steps listed in Figure 3 (Dick & Cary, 1990; Gagne, 1985; McManus, 1995; Reiser, 1992):

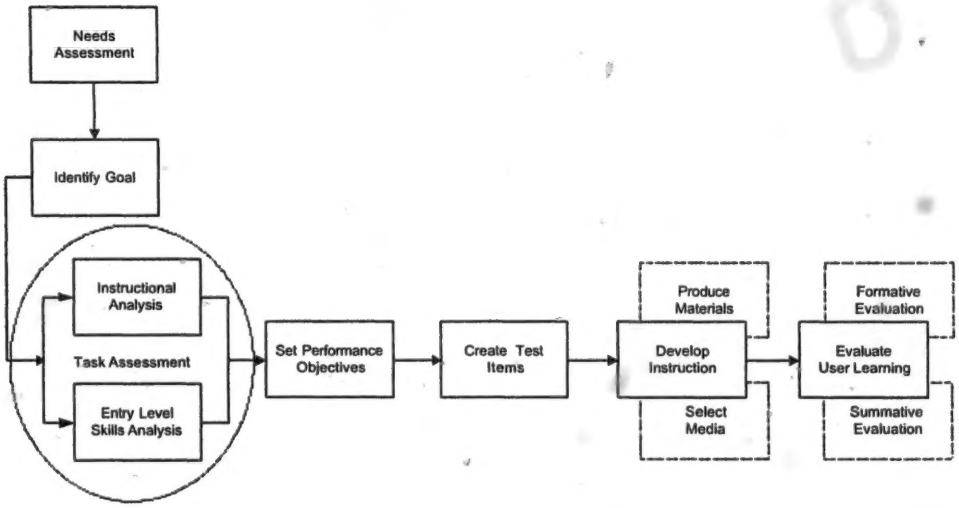

Figure 3. Steps included in the traditional systematic design model

The instructional system design is still widely used today, especially in print-based and instructor-lead media (Reiser, 1987, 2001; Reiser & Walter, 1996). Because this model stresses evaluation, it is especially useful in cases where objective measures are required. The linear structure of the model can often lessen the potential for poor course design. While the linear structure of instructional systems design may prove to be beneficial in the delivery of simple, well-structured procedural knowledge, it can be a drawback in complex or ill-structured learning environments (Jonassen, 1991,1997). The model's linear nature may also limit the effectiveness of hypermedia, an extension to hypertext that supports linking graphics, sound and video elements to text, environments and other unstructured environments like the World Wide Web (Tolmie, 2001). Another limitation to this model and to behaviorism in general is summed up in Skinner's (1968) position, that "teaching is simply the arrangement of contingencies or reinforcement" and the subsequent fact that learning, motivation, and performance are simply viewed as behavior. This notion presents a limited view of the human experience of knowing and learning and a disregard for the cognitive processes that are fundamental to the cognitive theories of today.

Even advocates for the ISD model recognize that there are fundamental problems with model that need to be resolved. Reigeluth and Nelson (1997), advocates of the ISD model stated that

> ...indeed, the health of the field [ISD] (if not its survival) depends on the ability of theorist and researchers to generate and refine a *new bread of Learning-Focused instructional theories* that help education and training to meet those needs—i.e., that focus on learning and foster the development of initiative, teamwork, thinking skills, and diversity. The health of ISD also depends on the ability of practitioners and researchers to develop a *User-Designer Approach* to the ISD (p. 205-206).

They also stressed that it is important to not completely reject and discard the old ISD paradigm and that the new paradigm should incorporate most of the accumulated ISD knowledge by restructuring it substantially into different configurations that will address the needs of the user. While Reigeluth and Nelson would prefer to maintain the foundations of ISP paradigm, they may not be able to. Moving toward a user-centered approach that stresses initiative, teamwork, thinking skills and diversity, runs counter to the fundamentals of behaviorism, which is at the foundation of the ISD approach.

Cognitive Theories

Cognitive theories are often viewed as a reaction against behaviorism (Clay, 2002; Cole, 1996). By going beyond the information given and focusing on the mental processes that are involved in knowing and learning, cognitive theories offer a much larger view of human capability and potential (Bruner, 1973). In general, cognitive theories place an emphasis on higher order thinking and look at the processes that are involved in all aspects of knowing and learning. Constructivism is perhaps the most well known cognitive theory and represents much of the current emphasis of the cognitive movement (Di Vesta, 1987). In addition to constructivism, the following theories and approaches discussed contributed to form the basis for the

inquisitivist approach that will be discussed in the following chapter on the development of inquisitivism.

Constructivism

Constructivists posit that learning is an active process in which individuals construct knowledge based on their interactions with the world (Jonassen, 1994). Learners rely on their cognitive structures, their needs, beliefs, and prior knowledge to transform new information into new knowledge. It could be argued that constructivism is a theory of knowing as opposed to a theory of learning (Kearsley, 1997).

In general, constructivists believe that knowledge is constructed, not transmitted, and that it results from activity. They also hold that knowledge is anchored in the context in which learning occurs and that "meaning making" is in the mind of the knower, which necessitates multiple perspectives of the world. Meaning making is prompted by problems, question, confusion, or even disagreement and this meaning making is generally distributed or shared with others through our culture, tools and community (Jonassen, 1990, 1991, 1994, 1997; Jonassen, Peck & Wilson, 1998; Kearsly, 1997; Strommen & Lincoln, 1997; Vygotsky, 1978).

Jonassen (1994) proposed the following principles be used in the development of learning environments:

- Provide multiple representations of reality;
- Avoid oversimplification of instruction by representing the natural complexity of the real world;
- Focus on knowledge construction, not reproduction;
- Present authentic task (contextualizing rather than abstracting instruction);
- Provide real-world, case-based learning environments, rather than pre-determined instructional sequences;

- Foster reflective practice;
- Enable context-dependent and content-dependent knowledge construction; and
- Support collaborative construction of knowledge through social negotiation, not competition among learners for recognition.

The final point of collaborative construction of knowledge through social interaction is further supported by Vygotsky and is recognized as social constructivism. This form of constructivism focuses on socially co-constructed knowledge that is based upon a group's interaction with the world (Vygotsky, 1978).

Cooperative learning.

Collaborative construction of knowledge through social interaction cannot be thoroughly discussed without exploring the literature on cooperative learning (CL). Cooper Robinson & McKinney (1994) define CL as a:

> ...structured systematic instructional strategy in which small groups of students work together toward a common goal. Cooperative learning may be considered a subset of collaborative learning. Collaborative learning tends to encompass a variety of group learning experiences, such as peer tutoring, student-faculty research projects, short-term buzz groups, learning communities, and other techniques (p. 74).

There are over fifty forms of cooperative learning and each form has its appropriate application depending on the nature of the student needs and the expected educational outcome (Kagan, 1992). Regardless of the application Johnson, Johnson & Smith (1991), stressed that all cooperative-learning techniques must have the following features for most effective implementation:

1. a clear specification of the instructional goal or objective,
2. group work designed to promote some attitude, to teach something, or to give practice in performing a task, and

3. some form of individual student assessment to determine.

Slavin, (1983; 1990) also identifies positive interdependence and individual accountability as the two critical features which differential cooperative learning from other forms of small group instruction. Positive interdependence is fostered when members of a cooperative team feel a sense of responsibility and is an essential factor in achievement gains. With close to 50 years of research and many studies, there is a strong agreement among researchers that cooperative methods have a positive effect on student achievement. Therefore, cooperative learning represents a valuable strategy for helping students attain high academic standards (Kagen, 1993; Cohen, 1994).

Guided discovery and discovery learning.

Another important aspect of the constructivist approach is guided discovery. "Insofar as possible, a method of instruction should have the objective of leading the child to discover for himself" (Bruner, 1962, p. 123). Discovery learning refers to obtaining knowledge for oneself and takes place most notably in problem solving situations where the learner draws on his own experience and prior knowledge to discover the truths that are to be learned. It is a personal, internal, constructivist-learning environment.

Emphasis on discovery in learning has precisely the effect on the learner of leading him to be a constructionist, to organize what he is encountering in a manner not only designed to discover regularity and relatedness, but also to avoid the kind of information drift that fails to keep account of the uses to which information might have to be put. (Bruner, 1962, p. 87)

This does not mean that students are allowed to do as they wish. Rather, students are directed by the instructor to either solve a problem or gather information and develop a hypothesis. Meaningful learning is promoted by discovery because the learner uses inductive reasoning to formulate general rules, concepts and principles (Novak, 1979). Discovery learning is especially useful when the learning process is important but not too useful with well-structured content (Schunk, 1996).

Functional context.

Similarly, making learning relevant to the experience of the learner is the key to the functional context approach first proposed by Sticht (1975). New information is related to existing knowledge (information in long term memory) and transformed into new knowledge. Cognitive processing skills including language, problem solving, and learning strategies facilitate this transformation. Instruction that utilizes this approach strives to use the same materials in the training that will be used in the "real world."

The functional context approach was developed specifically for adult technical and literacy training (reading/writing/mathematics) in military programs, but it has implications for learning of basic skills in general (Sticht, 1976) and reading in particular (Sticht, 1975).

Situated learning.

Like the functional context approach, the situated learning theory proposed by Lave (1988) argued that learning is a function of the activity, context, and culture in which it occurs. Learning occurs as a result of social interaction. This theory is based on Vygotsky's (1978) social learning theory and stressed that social interaction is a critical component of situated learning, because learners become involved in a "community of practice" and adopt the beliefs and behaviors of that community. Experts (experienced individuals) within the community often share the beliefs and behaviors of the community unintentionally or model the proper conduct through their behavior. Newcomers interact with the experts and then they move into the community to become experts. This process can be referred to as cognitive apprenticeship and occurs unintentionally. Cognitive apprenticeship supports learning in a domain by enabling students to acquire, develop and use cognitive tools in authentic domain activity. Learning, both outside and inside school, advances through collaborative social interaction and the social construction of knowledge (Brown et al., 1989).

Minimalism

Minimalism was developed using an empirical process. Carroll's research at the IBM Watson Research Center in the 1980s suggested that traditional systematic instructional materials were ineffective and often hindered the learning of new technologies by trapping the learner in error loops within the instructional material. The minimalist goal is to get out of the way of the learner and to let them get more out of their training (learning) experience by providing a less overt training structure. Minimalism is a descriptive approach to designing effective instruction.

One of the key ideas in the minimalist approach is to "present the smallest possible obstacles to learners' efforts, to accommodate, even exploit, the learning strategies that cause problems for learners using systematic instructional materials" (Carroll, 1990 p. 77). Learners often experienced more problems working through the support and learning material than they did by simply attempting to learn the new system through discovery exploration (Carroll, 1990).

Carroll conducted many experiments over a 10 year period that demonstrated the minimalist approach to be much more effective than the traditional system approach in virtually all aspects of technical training involving adults. It is from this body of research that Carroll developed the rubric of minimalist instruction. The nine concepts listed below make up the primary principles of Carroll's (1990) minimalist approach:

Training on real tasks. This is one of the key differences from the systems approach. All training must take place on the actual system that is being learned.

Getting started fast. Adult learners often have interests other than learning a new system. The learning they undertake is normally done to compliment their existing work. The "welcome to the system" prefaces and other non-essential layers in an introduction are simply a waste of the learner's time.

Reasoning and improvising. There is no single correct training method or procedure. Allowing for self directed reasoning and improvising throughout the

learning experience will require that there is a substantial reduction in the length and volume of learning materials.

Reading in any order. Materials designed to be read in any order cannot be read in the wrong order. This will eliminate the common problems that arise from material read out of sequence.

Coordinating system and training. The most effective way to coordinate the system and training is to conduct the training on the actual system being learned.

Supporting error recognition and recovery. Much of what the learner does is error. Since there is such a pervasiveness of errors in most learning, it is unrealistic to imagine that errors can be ignored. Error recognition and recovery strategies need to be implemented to enable learners to learn from their mistakes instead of being trapped by them.

Exploiting prior knowledge. Most adult learners of technology are experts in other areas or domains. Understanding the learner's prior knowledge and motivation and finding ways to exploit it is one of the keys to effective adult training.

Using the situation. In many traditional cultures, "teaching" never occurs. Children are not shown how to perform skills or rituals or understand myths but are shown in context how to participate (Bruner, 1966 p. 151).

Developing optimal training designs. Instructional models are not deductive or prescriptive theories; they are descriptive processes. There is no "deductive theory of minimalist instruction" that given a set of minimalist principles, will allow us to crank out a minimalist training manual (Carroll, 1990, 1998). In contrast, the design process should involve the actual learner through empirical analysis so that adjustment can be made to suit the learner's needs.

A secondary key to the minimalist approach is the need to discover and support the learner's sense-making efforts. This discovery is a dynamic approach that will not only involve the instructional designer but also the learner. There is no minimalist checklist that a designer can use to create effective instruction. Carroll

(1990) states that taking checklists seriously is perhaps the most typical and debilitating design fallacy.

Carroll's (1990) research showed that the minimalist approach to learning may offer a sound theoretical foundation from which technology centered adult instruction can be designed. Like many other approaches, minimalism is a synthesis of many other theories. Despite offering many sound concepts for instructional design of technology related curriculum, the minimalist approach lacks a number of key components that are required for today's adult learner. The approach does not address the issue of preparedness for learning, does not factor in the adult learner's fear or anxiety towards technology, and does not effectively address the collaborative aspects of learning and work environments (Kearsley, 1998; Mirel, 1998; Redish, 1998). These shortcomings can be attributed to the fact that the development and most common application of minimalism are in the domain of documentation, design, and development. Issues of preparedness, fear or anxiety and collaboration are not generally factors that affect documentation design and could be viewed simply as misconception about minimalism.

Misconceptions About Minimalism.

Many of the criticisms of minimalism are not necessarily accurate challenges but are more often perceptional problems that are based on a misconception or a misunderstanding of the minimalist approach.

Minimalism means brevity.

Brevity is implied by the term minimalism and, unfortunately, is often misunderstood as the central thrust of minimalism. This misconception leads to a view of minimalism that is caricature of minimalism (Carroll & van der Meij, 1998). There is also a tendency for commentators to explain away minimalism by giving it this label. The bias of this label stems from the approach's emphasis that instructions and instructional material be developed in the most concise and brief way possible.

Perhaps brevity is not a challenge at all. Is there any practical benefit in expressing little (information, instructions, details etc.) in many words, or is being

obtuse and vague beneficial to the learner? On the contrary, expressing much in few words, or being clear and succinct should be the preferred method for presenting all forms of material. William Strunk Jr., in the Elements of Style, argued:

> Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason a drawing should contain no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all his sentences short or that he avoid all detail and treat his subjects only in outline, but that every word tell (1979, p. 23).

Perhaps we need to examine ways to eliminate or prevent this type of this misconception, rather than view it as a viable criticism to minimalism.

While the logical and theoretical aspects of criticism of brevity may not be valid, the practical aspects of brevity do present a challenge to students who are accustomed to the more traditional forms of instruction that employ lengthy and often exhaustive step-by-step directions.

Minimalism means trial and error learning.

Reasoning and improvising are key elements in the minimalist approach and to discovery learning (Bruner, 1960, 1966; Vermans, de Jong, & van Joolingen, 2000; Salmon, 2002). When combined with the other key elements, using the situation training on real tasks, students are challenged to become active learners. Keller (1983) suggested that real or realistic tasks should be highly motivating. Working on real world tasks also better supports the transfer to real situations (Duffy & Johnassen, 1992), and dealing with real problems helps students become independent learners (Bruner, 1966, 1973; Salmon, 2002). In addition to becoming independent learners, knowledge is created through the transformation of experience (Kolb, 1984).

Despite these positive aspects of discovery learning, this approach can be very troubling for students who are not accustomed to it. When combined with the misconception (by students and critics alike) that this approach leaves one without the necessary instructions to complete a task and forces one to relay on trial and error, it

is not surprising to see this is a definite obstacle that must be overcome. It is easy to confuse discovery learning with trial and error (DeWeaver & Bauman 1992; Farkas & Williams 1992; Kamouri, et. al., 1986; Willliams & Farkas, 1992) if one incorrectly assumes that there is an absence of all instruction or instructional material and that learners are forced to use a process of trial and error to work through assignments.

This confusion is further exacerbated by reliance on and, in some cases, a dependence on systematic (i.e., rote or recipe) curricula and methodology. These curricula, based on passive and rote-structure approaches, are not simply removed but replaced with curricula and support that encourages the learner to become active and embrace their learning experience. Effective discovery learning must be carefully supported (Carroll & van der Meij, 1998; Wiesenberg, 2001) and must provide the learner with all tools, information and support that they need to successfully complete the assigned tasks.

Minimalism has no theoretical foundation.

Because the development of minimalism and its current application focuses on document design, some critics argue that it is simply a list of rules of thumb of documentation (Carroll & van der Meij, 1998). Others are even more direct in their accusation by stating, "even if it does work well, we will never know why" (Halgren 1992, p. 12). These criticisms may be more accurately attributed to an ineffective presentation of minimalism rather than incomplete research. Because there has been no definitive set of minimalist guidelines published or any step-by-step procedures for creating minimalist documentation or instruction, the critics who are accustomed to this sort of material perpetuate the misconception of no theoretical foundation.

With a cited foundation of over two hundred books and technical papers drawn from education psychology, learning theory, cognitive science, human-computer interaction, and information design (Carroll & van der Meij, 1998), the *Nurnberg Funnel* (the minimalist foundational work) is well grounded in theory. In addition, the basic minimalist model has three main roots derived from Dewey, Piaget and Bruner. From Dewey (1910) is the view that the realm of the mind includes the

situations and tools that comprise problems and the tools to solve them (Carroll & van der Meij, 1998). From Piaget (1963) is the view of the mind as transforming itself and solving new sorts of problems (Carroll & van der Meij, 1998). And finally, from Bruner (1966, 1973) is the view that learners must be active in their own learning experience in order to grow and become independent learners (Carroll & van der Meij, 1998). When the evidence is clearly revealed, it is difficult to dispute that minimalism has no theoretical foundation.

Kearsley (1998) affirmed the "solid theoretical foundation for minimalism" (p. 395) but also pointed out that it does have theoretical gaps. The most significant gap in minimalism is that it does not address the social aspect of learning (Kearsley, 1998). A lesser gap is that minimalism has not been tested in a variety of media, specifically online systems. Another shortcoming of minimalism is that it has not been linked to other major cognitive and instructional theoretical frameworks (Brien & Eastman 1994; Wilson, 1996; Kearsley, 1998). Similarly, Redish (1998) revealed that particular cognitive styles may not be particularly compatible with the guided exploration strategy that is foundational to minimalism. Mirel (1998), pointed out that most of the research into minimalism has dealt with the basic functions of programs and may not be suitable for higher order cognitive skills. Hackos (1998) countered this criticism by presenting an application of minimalism for expert users that addresses a much more sophisticated utilization of the approach.

While it is clear that there are shortcomings in the minimalist approach, the literature also reveals that the approach is theoretically grounded. In addition, many of the shortcomings that have been noted are more the case of a lack of research into the application of minimalism in specific areas (i.e., its suitability for online environments) than a case of an actual theoretical gap.

Summary of Learning Theories and Approaches

We can conclude from the literature that while the behaviorist based systematic instruction may have advantages in simple domains, and even though it is widely used in education today, there is a move toward constructivist theories and

approaches that emphasize the construction of knowledge and the learner's experience. Carroll effectively summarized the current key ironies and fundamental problems of systematic instruction and provides one explanation for this move:

> It is surprising how poorly the elegant schema of systems-style instructional design actually works.... Everything is laid out for the learner. All that needs to be done is to follow the steps. But as it turns out, this may be both too much and too little to ask of people. The problem is not that people cannot follow the simple steps; it is that they do not (1990, p. 74).

Carroll continued to argue that people live in a world of action, and they need to interact meaningfully in that world instead of being forced to reduce their world to series of simplistic instructions that may ultimately leave them in a tangle of errors (1990). Avoiding oversimplification of instruction by representing the natural complexity of the real world and enabling content and context knowledge construction is a more appropriate form of learning environment recommended by Jonassen and similar constructivist theorists (1994). The minimalist approach incorporates many of the constructivist principles required for building effective learning environments and can serve as a good starting point for an effective learning approach required for web-based instruction.

Web-based Instruction Literature

Objectivism and constructivism are two distinct and opposing theories that are commonly recommended as foundations for web-based instruction. Objectivists believe:

> ...in the existence of reliable knowledge about the world. As learners, the goal is to gain this knowledge; as educators, to transmit it. Objectivism further assumes that learners gain the same understanding from what is transmitted .... Learning therefore consists of assimilating that objective reality. The role of education is to help students learn about the real world. The goal of designers or teachers is to interpret events for them. Learners are told about

> the world and are expected to replicate its content and structure in their thinking (Jonassen, 1991 p.28).

Some advocates of the objectivist approach endorse systematic instruction and insist that traditional systematic instruction design principles be followed on the web. For example, Welsh (1997) insisted that web-based instruction must use an instructional design model that meets the following criteria:

a. It must be systematic, and therefore useful as a standard online course development methodology.

b. It must be adaptable to different educational disciplines and to differing andragogical orientations.

c. It must be technology independent, incorporating technologies in wide use for instruction, as well as new technologies such as the web.

d. It must be useful in traditional contexts so faculty can recognize the benefits of the design approach in instructional contexts other than WBI.

Each one of these points is important in and of itself, but when they are combined and deemed to be foundational, the resulting curriculum will be instructor focused and leave little consideration for the needs of the student. This event oriented or systematic approach is beneficial for the instructor, because once an instructor has designed a course using this model, it is a relatively simple matter to enable the same events or tasks in a more traditional setting (Welsh, 1997). On the other hand, if the instruction deals with declarative knowledge or, more importantly, with higher levels of thinking and learning, systematic models and the instruction produced by them may prove ineffective (McManus, 1995).

McManus (1996) suggested that the Internet could easily be considered the ultimate constructivist learning environment. Some of the more recent titles of instructional design models that use the foundation of constructivist epistemology include: the information construction (ICON) model (Black & McClintock, 1995),

cognitive flexibility (Carvalho; 2000; Jonassen, et al, 1997; Spiro, Feltovich, Jacobson, & Coulson, 1991), learner-centered (Bonk & Reynolds, 1997; Verbeeten, 2002), active learning (Berge, 2002; Bostock, 1997), project-based collaborative learning (Duffy & Jonassen, 1992; Vranesh, 2002), or constructivist learning environments (Alesandrini, 2002; Hughes & Daykin, 2002 ; Jonassen, 1997; Leonard, 2000), and engagement theory (Kearsley & Shneiderman, 1999). The focus has shifted from the instructor and designer to the learner. Most of these approaches incorporate very similar principles. For example in the article *Model for Designing Constructivist Learning Environments*, Jonassen (1997) explained how constructivist learning environments (CLE) that employ student centered projects, cognitive tools, social interaction, and other knowledge constructing strategies can be used to produce effective learning experiences and positive learning outcomes. These same principles are common to most approaches and theories listed above.

Engagement theory (Kearsley & Shneiderman, 1999) is another example of a theory that shares many components of other constructivist theories or approaches. While this theory has only three components summarized by the phrase Relate-Create-Donate, when expanded it is very similar to the principles of Jonassen's constructivist learning environments and to Carroll's minimalist rubric. The first principle, Relate, emphasizes the collaborative, and social aspect of learning and stresses that collaboration increases motivation (Kearsley & Shneiderman, 1999). The second principle, Create, emphasizes the advantages of working on projects that have been selected or created by the learners. Kearsley and Shneiderman argued that even if students do not choose their own project topics, project work still gives them a sense of control over their learning. The third principle, Donate, stresses the value of making the projects useful for an outside customer. The emphasis on working on real world tasks is, once again, similar to minimalism.

Jonassen, et al., (1997) suggested that cognitive flexibility theory is among the richest and best researched of these models and is perhaps one of the most adaptable to the hypertext environment of the World Wide Web. Cognitive flexibility theory was developed to overcome sources of misunderstanding and promote advanced

knowledge acquisition. These misunderstandings have come from traditional designers who have oversimplified the content and divorced it from its context with the belief that the novice learner is not able to understand the complexity of a subject (Jonassen, et al., 1997). When content is oversimplified and divorced from its context within a specific knowledge domain, a shallow understanding of the knowledge domain is often the result. In order to overcome these problems, cognitive flexibility theory attempts to avoid over simplification by providing direct hypertext links to the necessary information. This interconnectedness of ideas and information is so easily facilitated on the World Wide Web that learners can be given access to in-depth information on virtually any subject. Learners can decide to use whatever information they need to gain a thorough understanding.

One of the assumptions of cognitive flexibility is that the role of the guide will be taken by the instructional medium rather than by a teacher in a classroom situation (McManus, 1995). This assumption (guide on the side) is also central to many other constructivist learning theories used in web-based instruction. This focus puts the learner at the center of both the instructional design and the learning experience. Advocates of this learner centered approach recognize the relevance of Vygotsky's (1978) claim that the social environment is at the origin of mental activity and growth and that student learning is increasingly analyzed in a social context (Brown & Palinscar, 1989; Chang-Wells & Wells, 1993). The World Wide Web is one such learning environment or community where learner centered instructional techniques have flourished (Bonk & Reynolds, 1997).

Untested Claims and Expectations

No review of the literature on web-based instruction would be complete without addressing the more fundamental or even philosophical criticisms of web-based instruction or distance education in general. Many of these criticisms are very harsh and are often made in response to the over exuberant claims of Internet advocates that the Internet (and distance education via the Internet) will revolutionize

education and solve education's current problems. For example Phil Agre (1998) charged:

> Do not spend vast sums of money to buy machinery that you are going to set down on top of existing dysfunctional institutions. The Internet, for example, will not fix your schools. Perhaps the Internet can be part of a much larger and more complicated plan for fixing schools, but simply installing an Internet connection will almost surely be a waste of money (p. 233).

The Internet is not the first technology predicted to radically change education. Dreyfus (2001) reminded us that in 1922, Thomas Edison predicted that the motion picture would revolutionize the educational system. In 1945 Cleveland's directory of public schools, William Levenson claimed the radio receiver in the classroom would one day be as common as blackboards. In the late 50's and early, 60's, B.F. Skinner predicted that programmed instruction and teaching machines would enable students to learn twice as much in the same amount of time (Oppenheimer, 1997; Skinner, 1958). More recently, Reed Hundt (1999), the former Chairman of the American Federal Communications Commission, claimed that traditional universities (even his alma-mata Yale) are threatened by the Internet because the four pillars of academia (extensive library, scholarly communication and collaboration, validation, and quiet contemplation) are effectively supplied by the Internet. Hundt went on to state that because of the Internet, the world's libraries are already at academics' finger tips, most scholarly communication is currently conducted over the Internet, the current validation system is disintermediated by the Internet, and it does not get any quieter than exactly where one wants to live.

These and many other untested claims help create unrealistic expectations for educators, educational administrators and, more importantly, students. In contrast to the above-unsupported claims, the findings of a five-year study of graduate students in a distance program at the University of Calgary portrayed "a roller coaster ride" for these students (Wiesenberg, 2001). The study concluded that in order for e-learning to succeed, educational institutions needed to pay more than lip service to the stresses

and competing role demands of adult distance education students and to provide accessible, comprehensive and user friendly support systems.

In their framework for research and practice Garrison and Anderson (2003) two advocates for WBI, or e-learning as they prefer to call it, suggested that collaborate constructivism be at the centre of effective e-learning. They stressed the importance of community and posited that individuals create meaning for themselves, which is then related to society. More specifically, Garrison and Anderson (2003) emphasized that transactions between teachers and students with the specific purpose of facilitating, constructing and validating understanding, along with developing capabilities will not only lead to further learning but will establish a critical community of learners.

Recent research has also shown that there are problems with distance programs, and much needs to be done to better build communities of learners and to support distance learners (Brigham, 2001; Gibson, 2000; Peters, 2000; Wiesenberg, 2001). This research also showed that proponents of web-based instruction need to address these problems and make the necessary improvements to provide the distance student a comparable and effective educational environment. It is perhaps more important that instead of making unrealistic claims and influencing unrealistic expectations, proponents of web-based instruction must be realistic and accurate in describing what these new education systems and approaches are really designed for and what they can do.

Philosophical and Fundamental Challenges

The modern philosopher and Internet critic, Herbert Dreyfus (2001), offered two more fundamental challenges to web-based instruction and distance education: 1) without involvement and presence we cannot acquire skills and 2) because the body is a source of our grip on reality, the lack of background coping and attunement endemic to telepresence (extending one's presence through electronic means) leads to the loss of a sense of reality of people and things.

Effectiveness of Technology and web-based Instruction

Dreyfus (2001) argued that effective learning requires an apprenticeship process as a learner moves through the seven stages of skill acquisition (novice, advanced beginner, competence, proficiency, expertise, mastery and practical wisdom), and complete mastery of a domain requires the learner to be involved with the masters on a day-to-day basis. He explicitly claims that, at best, distance learning will only produce competence. This particular claim has been recently countered by a comparative meta-analysis that evaluated the effectiveness of distance learning. It revealed that there was no decline in instructional effectiveness when using distance education, and that students scored slightly higher then their counterparts in the traditional F2F setting (Allen, Mabry, Mattery, Bourhis, Titsworth, & Burrel, 2001). One of the selection criteria of the meta-analysis was that investigations included had to offer at least one assessment of student performance in the course related to mastery of some content or skill. The F2F students demonstrated mastery of the skill or content, therefore, it is assumed that the online students did so as well.

A similar meta-analysis published by Olsen and Wisher (2002) confirmed that students in web-based instruction courses scored slightly higher than those in conventional classrooms. This study also compared empirical studies on web-based instruction to computer based instruction (CBI) research and found that there was no statistically significant difference between the two (Olsen & Wisher, 2002). This determination must be qualified by the fact that since web-based instruction is a relatively new endeavor, there is not a large enough body of empirical research to produce acceptable effect size.

An additional qualification or caution in taking the results of these meta-analyses as conclusive evidence comes from the literature that deals with the "no significant difference phenomenon." Proponents of this position argue that the large body of education research that compares technology-based instruction with traditional instruction is significantly flawed. They have demonstrated that the research that reveals that there is no statistical or significant difference between the types of instruction is significantly flawed by errors of internal and external validity.

Richard Clark, considered a leader in the no-significant difference literature, has argued that media does not influence learning and that "learning is caused by the instructional elements embedded in the media presentation" (1995, p. 26). Another influential supporter of this position argued that research comparing the learning benefits in different forms of instruction (technology vs. traditional), at best, shows that technology at least does not adversely affect instruction (Russell, 1999). Russell also stressed that educators must focus on effective learning and not technology.

In another recent meta-analysis of no significant difference findings, Joy and Garcia (2000) argued that: "even if a legitimate scientific model could be designed to properly control each independent variable, its usefulness for predicting outcomes, in all likelihood, would be extremely limited" (p. 38). Therefore, they suggested, instructors be extremely cautious in interpreting the results of media comparison studies and that educators should not assume that students would learn better from technology delivery system (Joy & Garcia, 2000). Their final recommendation was that educators strive to produce the desired learning outcomes by combining instructional strategies and delivery media. This recommendation was also supported by Twig (2001) who stressed that education must focus on effective learning and not technology.

Need of Presence and the Limitation of Telepresence

While Dreyfus' argument may be generalized to apply to disciplines that do require the physical presence of the learner or require the apprenticeship process, his argument does not apply to forms of technology-related instruction in which learners are actively using the system to learn the system. Instruction that focused on aspects of online communication and interaction would require students to not only gain experience with telepresence but would also require them to deal with its effects. For example, in studying Internet communication and technology, students can be actively involved in learning how to effectively use telepresence (a primary function of using the Internet) and not be limited by the endemic problems related to

telepresence. Rather, they are learning how to deal with, or cope with, the lack of actual presence and the potential loss of a sense of reality.

In addition to using the system to learn the system, applied constructivist approaches that advocate collaborative construction of knowledge and courses that provide some form of web-based conferencing system can help students ground them in reality by involving them in a community that communicates with each other through the conferencing system.

Creating True Constructivist Learning Environments

Perhaps one of the most effective criticisms of constructivist learning environments comes from Gance (2002), who charged that the facile association of computer based educational technologies, as inherently constructivist, cannot be sustained. More specifically, Gance has revealed that many web sites and instructional software that claim to be, or foster, constructivist learning environments are actually retrograde in the sense that they largely incorporate behaviorist or information transfer strategies that are actually antithetical to constructivist philosophy. Gance identified four components of a constructivist learning context: an engaged learner, hands-on interaction with the materials of the task, an authentic problem-solving context and human interactions during the process and suggested that these four components are seldom effectively realized in web-based courses.

For example many of the interactive quizzes now available on web-based courses, while being significantly more interactive then traditional quizzes, are still based on the information transfer view of teaching and learning and use the behaviorist principles of drill and practice. Similarly much of the video based vignettes used in web-based courses are didactic in nature and often present their message in the tone of early instruction television. Finally, Gance revealed that most hyperlinked concepts are often organized according to traditional instructional design principles (Gance, 2002).

Gance's criticisms reflect a genuine problem with the current state of web-based instruction. These criticisms must be viewed as positive warnings for

instructional designers attempting to develop truly effective constructivist learning environments. If the fundamental principles of constructivism are not followed and are not effectively realized in web-based courses, regardless of the labels that are placed on the course, we could see a movement away from constructivism in web-based instruction.

Summary

Many aspects of cognitive flexibility theory are found in Jonassen's (1997) model for constructivist learning environments, which comes close to providing a complete conceptual framework for the development of web-based instruction. Unfortunately, it and other theories or approaches often focus too closely on only one or two aspects of constructivist epistemology. Similarly, the minimalist approach has the potential to provide a sound foundation for web-based instruction but also falls short in a few key areas. Both theories/approaches do not: effectively address the issue of learner preparedness, address or even acknowledge the issue of anxiety and fear that many adults face when working with or learning new technology, and address the issue of stimulating the natural curiosity (inquisitivism) which is essential to active and discovery learning. There is a need for a theory or an approach that can combine all the positive aspects of constructivist epistemology into one comprehensive approach that can serve as an effective foundation for web-based instruction.

CHAPTER THREE: INQUISITIVISM AS AN EXTENSION OF MINIMALISM

Inquisitivism is a descriptive approach to designing instruction. It shares many of the same principles as minimalism but offers two key principles or components that set it apart. These two principles are co-dependent in the sense that the second principle cannot be realized without the first. The first principle of the inquisitivist approach is the removal of the fear that many adults have when first faced with learning technology. Many adults who are new to technology are virtually paralyzed when placed in front of a computer. The fear of "breaking something" or perhaps the fear of looking or feeling foolish often prevents these adults from embracing computers and technology (DeLoughry, 1993; Shull & Weiner, 2000).

For several years, in the mid to late 1990s, I instructed courses called *Windows 95 & 98: Scared Stiff* at a community college. The courses were designed to "loosen up" and help adult learners. In most cases these adult learners, who were facing a computer for the very first time, had to overcome their fears and get comfortable enough with computers to be able to learn how to use them effectively. It is from this experience and many other similar experiences with adult learners in a variety of education settings that confirmed for me the need for an approach that addressed an adult learner's preparedness for learning.

The second most significant, or dependent principle is the stimulation of inquisitivism. By designing instruction that reduces the "hurt level" and encourages the "HHHMMM??? What does this button do?" approach/attitude to learning, adults can be encouraged to learn in a similar fashion that children learn. Exploring and discovering the power and potential of computers can be an exciting and stimulating process if the learner is confident that they "can't break the system" or that the system "won't break them." With fear reduced and the inquisitive nature stimulated, it can be argued that adults can have almost the same level of success with technological learning as children. An inquisitivist approach to learning technology is essential because technology is dynamic and is rapidly changing, forcing learners to continually adapt to these changes.

Another significant factor about inquisitivism is that the approach was developed (and continues to evolve) during the development and continued delivery of the web-based course *The Internet: Communicating, Accessing & Providing Information* (Montgomerie & Harapnuik, 1996), colloquially referred to as "*Nethowto*." The development of the inquisitivist approach was a practical response to a need and was the result of a search for a theoretical foundation for the design, development, and delivery of the course. As *Nethowto* evolved, it became clear that many of the principles that ultimately became foundational to inquisitivism were at work in the development of the course.

Relationship Between *Nethowto* and Inquisitivism

The current version of *Nethowto* evolved from a F2F credit course offered by the Faulty of Education at the University of Alberta. The course is delivered exclusively online with no F2F interaction. Students work independently on the course and are allowed to control their own schedule. Even though the course does follow the traditional fall, winter, spring and summers session scheduling, students are allowed to start the course in one session and complete it on another. The course was developed in 1995 to instruct students in all aspects of Internet use and communication.

While still in development (June - August, 1995), it became obvious to Montgomerie and Harapnuik that, as proponents of alternative methods of instruction, and as purported experts on the use of the Internet in education and library and information science, they should 'walk-the-talk' and develop the course in such a way that it could be delivered completely over the Internet in an asynchronous mode (Montgomerie & Harapnuik, 1996, 1997).

Nethowto (initially a graduate level course) was delivered for the first time in a F2F mode during September-December 1995. A number of Web pages were developed to support this delivery. The course was offered a second time during January - April 1996, again in a F2F mode. While the course was being delivered, students were asked to provide feedback on what they thought would make the course

more amenable to use by distance students. This input resulted in the constant revision of the Web pages and during the second offering of the course, a few students who could not attend the lectures were encouraged to still take the course and to rely on the new Web pages. These students were also encouraged to communicate with the instructors by telephone or electronic mail (Montgomerie & Harapnuik, 1996, 1997).

The course was expanded and revised to accommodate undergraduate students and *Nethowto* was delivered completely and exclusively over the Internet for the first time over the period of May-August, 1996 with over 100 students enrolled in both graduate and undergraduate levels of the course. During the pilot testing of the initial F2F/web-based course and the delivery of the first exclusively online version of the course, the developers had started noticing some aspects of the systematic approach that had worked in the F2F setting that did not work over the Web. Due to the complexity of the information that was being dealt with in the course, the unstructured nature of the content of the course (the Internet) and the extensive use of hyperlinks, the linear structure and general approach imposed by systematic instructional design seemed to have limitations.

While there may be some debate as to whether instructional systems design (ISD) results in linear instruction, one of the founders of ISD, Walter Dick confirmed that: "…the model remains basically a *systems* model, that is, the output of one step is the input for the next step. Ultimately there must be a connection between the boxes, a consistency in the flow, from box to box" (1996, p. 62). Willis (1995) confirmed that the systems approach is sequential and linear and further criticized the ISD model. Wilson (1993) stated that ISD model in its present form is not appropriate for the times because its orientation, methods and research base are behaviorist. Even advocates of ISD like Reigeluth and Nelson (1997) recognize that there are fundamental problems with ISD and that if the model is to survive it must move toward a user-centered approach that stresses initiative, teamwork, diversity and thinking skills.

The literature and experience confirmed that a more flexible and open approach was required. After reviewing the learning theory literature, I focused on a number of approaches within the category of constructivist learning theories to see if they could be effectively applied to what we were doing in the online course.

Because the online students were learning about the Internet while they were using the Internet, the constructivist emphasis of knowledge being constructed as the result of activities, learning occurring within a context, and meaning making in the mind of the knower, confirmed that constructivist learning theories were a natural fit (Jonassen, 1990, 1991, 1997; Jonassen, Peck &Wilson, 1999; Kearsley, 1997; Strommen & Lincoln, 1997). To prevent students from being isolated and to foster a collaborative environment, a web-based conferencing system was added to the course and students were required to help each other out with assignments and discuss current topics. This emphasis on social/community learning corresponded with Vygotsky's (1978) theories on social learning and also reflected the positive aspects of cooperative learning. The course collaborative component provided students with the opportunity to share their experiences and assist each other in dealing with the explosive growth of the Internet and the subsequent continual changes in the tools used to access the Internet.

Many Internet programs that students in the *Nethowto* course needed to use (and to learn to use) were evolving so rapidly that it was not uncommon for step-by-step tutorials to be obsolete as soon as we made them available. I quickly found that even slightest changes in the programs made the step-by-step tutorials more of a hindrance then a help. If what students saw on their desktop was even slightly different then what was in the tutorial they became frustrated and simply stopped. In response to this problem, I sought out ways to encourage students to use their prior knowledge and experience with computers and software. In addition, I sought out strategies to encourage students to learn by experimenting with the software.

This investigation revealed that many aspects of Bruner's discovery learning could be used to encourage students to become more self reliant learners and adapt

more easily to the changes in software that they were continually facing in their use of the Internet. Aspects from other constructivist approaches also seemed to apply to the development and delivery of *Nethowto*. For example, Sticht's (1975) emphasis in the functional context approach of making learning relevant to the experience of the learner and Vygotsky's (1978) social learning theory which stresses that social interaction is a critical component of situated learning because learners become involved in a "community of practice" and adopt the beliefs and behaviors of that community, had significant roles to play in the design of the course and, ultimately, the formation and evolution of the inquisitivist approach.

In 1997, the third year the *Nethowto* course was delivered and the second year it was delivered exclusively online, the minimalist approach was researched and even though it was originally designed as an approach for document design, components of its rubric seemed very appropriate to, and were applied to, *Nethowto*. During this time it became apparent that even though minimalism satisfied many of the instructional design needs of *Nethowto*, two areas (fear removal and social interaction) were not addressed and needed to be included. As a result, inquisitivism was formalized in 1998 (Harapnuik, 1998). Table 1 offers a comparison of inquisitivism to the constructivist learning environments (CLE) and minimalist rubric from which it ultimately evolved.

It must be noted that many of the same principles apply to all three approaches. For example, all three approaches share the need for students to work on real world tasks in genuine settings. As would be expected of constructivist approaches, all three emphasize knowledge construction, whether it is called reasoning and improvising or discovery learning. Since inquisitivism is an adaptation of minimalism, it shares even more of the same principles. Inquisitivism is continually evolving, but there are currently ten key concepts/components that make up the approach.

Table 1. Comparison of constructivist learning environments, minimalism and inquisitivism

Constructivist Learning Environments	Minimalism	Inquisitivism
Provide multiple representation of reality	Reasoning and Improvising	Fear removal
Avoid oversimplification of instruction by representing the natural complexity of the real world	Getting started fast	Stimulation of Inquisitiveness
Present authentic task (contextualizing rather than abstracting)	Training on real tasks	Getting started fast
Foster reflective practice	Using the situation	Using the system to learn the system
Focus on knowledge construction, not reproduction	Reading in any order	Discovery learning
Enable context-dependent and content-dependent knowledge construction	Supporting error recognition and recovery	Modules can be completed in any order
Support collaborative construction of knowledge through social negotiations not competition among learners for recognition.	Developing optimal training designs	Supporting error recognition and recovery
	Exploiting prior knowledge	Developing optimal training designs
		Forum for discussion and exploiting prior knowledge
		Real world assignments

Components of the Inquisitivism Approach

Many of the components of the inquisitivist approach are identical to those of the minimalist approach but all are given here for the sake of completeness.

Fear removal: Dealing with the paralyzing fear that many adult learners experience must precede the stimulation of their natural inquisitiveness. Demonstrating that the computer and/or other piece of technology is not easily broken, providing explanations, examples and solutions for common errors and problems, and the application of data backup will help limit the adult learner's initial fear. Providing a learner an opportunity for immediate success is also a significant factor for alleviating fear.

Stimulation of inquisitiveness: With the fear abated, encouraging adult learners to become like children and to enjoy the pleasure of inquisitiveness can be facilitated. Learners are encouraged to use the "HHHMMM??? What does this button do?" approach (Harapnuik, 1998). The design of all instructional material must be formatted to facilitate a learner's success with discovery.

Using the system to learn the system: All training must take place on the actual system that is being learned.

Getting started fast: Adult learners often have other interests than learning a new system. The learning they undertake is normally done to complement their existing work. The "welcome to the system" prefaces and other non-essential layers in an introduction are often an unnecessary waste of the learner's time.

Discovery learning: There is no single correct method or procedure. Allowing for self directed reasoning and improvising through the learning experience encourage the adult learner to take full responsibility for his/her learning.

Modules can be completed in any order: Some modules and related materials can be read or completed in any order. Students impose their own hierarchy of knowledge, which is often born of necessity and bolstered by their previous

experience. This will eliminate the common problems that arise from material read or completed out of sequence.

Supporting error recognition and recovery: Learning involves errors. Since there is a pervasiveness of errors in most learning, it is unrealistic to imagine that errors can be ignored. Error recognition and recovery strategies need to be implemented to enable learners to learn from their mistakes instead of being trapped by them. In WBI, for example, the use of frequently asked question lists (FAQ's), help forums and other help strategies must be implemented to deal with the errors and problems that arise.

Forum for discussions and exploiting prior knowledge: Adult education dealing with technology is often conducted through alternative delivery. Distance education, WBI and other alternative delivery methods can isolate students. Providing a conferencing system for the replacement of face-to-face (F2F) interaction is a crucial component of any alternative delivery program. Most adult learners of technology are experts in other areas or domains. This expertise can be utilized when adult learners are given the opportunity to discuss topics that allow them to demonstrate their prior knowledge and abilities. By facilitating these types of discussions learners can be motivated to participate and contribute positively to their learning experience and to the experience of their peers. In addition, adult learners should be motivated to assist each other and should be encouraged to use the conferencing system to facilitate social interaction.

Real world assignments: "Make-work" (purposeless) projects are often not effective. Assignments must have a real world application. Adult learners are often undertaking training to be able to work in their own area of expertise more effectively. If possible, the assignments should be tied directly to the learner's personal or professional interests while at the same time challenging the learner to expand their current knowledge base.

Developing optimal training designs: Feedback facilities like online surveys or email should be used to allow learners to immediately receive feedback on any

aspect of a program. Problems with instructions, assignments, wording or other problems should be immediately addressed and corrected. Instructional models are not deductive or prescriptive theories; they are descriptive processes. The design process should involve the actual learner through empirical analysis so that adjustments can be made to suit the learner's needs. "Develop the best pedagogy that you can. See how well you can do. Then analyze the nature of what you did that worked" (Bruner, 1960).

Why a Learning Approach is not a Learning Theory

To be certain that inquisitivism is not misunderstood, it must be stressed that it (inquisitivism) is an instructional approach (or an instructional design approach) and not a learning theory. An approach is generally defined as a method used in dealing with, or accomplishing, a task (Costello, 1991), and inquisitivism can simply be viewed as a method for designing, developing and delivering web-based instruction.

In contrast, a learning theory is a scientifically acceptable set of principles offered to explain behavior or phenomena (Shunk, 1996). A learning theory strives to explain how learning, which can be defined as an enduring change in behavior which results from practice or other forms of experience (Shuell, 1986), can take place. Theories provide an instructional designer a framework for interpreting environmental observations and serve as a bridge between research and education (Suppes, 1974). The inquisitivist approach is based on a synthesis of minimalism, constructivist learning environments, and other constructivist learning approaches and theories and cannot be considered a theory.

Summary

Web-based instruction is often complex, can appear to be ill structured or have a structure for openness, and relies heavily on hyperlinks and hypermedia. By its very nature, web-based instruction requires a flexible and adaptable foundational approach. Inquisitivism is not a static theory, but a dynamic approach to the implementation of effective learning environments and is ideally suited to web-based instruction because it was developed specifically for use on the Web. While it is

primarily an adaptation of the minimalist approach, inquisitivism has been significantly influenced by other constructivist learning approaches. Inquisitivism is also unique in the sense that its own principles were used in its development and that it was developed as a practical response to a need. One of the key principles of inquisitivism, using the system [Web] to learn the system, grew out of using the system [Web] to develop the approach. Inquisitivism was developed while working out instruction on the World Wide Web. It was and is continually being re-evaluated and the aspects of the theory that prove to work well are carefully analyzed and improved to insure that it continues to work.

CHAPTER FOUR: THE DEVELOPMENT OF *NETHOWTO* BASED ON THE PRINCIPLES OF INQUISITIVISM

Carroll (1990) stated that taking checklists seriously is perhaps the most typical and debilitating design fallacy. Despite this strong statement, Carroll provided a rubric of minimalist principles. Similarly, inquisitivism has evolved into an approach with a rubric of principles. The following ten principles were applied to the *Nethowto* course during a significant re-design of the course in the fall of 1998. It must also be noted that the course is still running.

Application of Inquisitivism to *Nethowto*

Fear Removal

Dealing with the paralyzing fear that many adult learners experience must precede the stimulation of one's natural inquisitiveness. Demonstrating that the computer or any other piece of technology is not fragile, providing explanations, examples and solutions for common errors and problems, and the application of data backup will help quell the adult learner's fear.

Dealing with, and facilitating the removal of the fear in adult learners is relatively straight forward in a F2F setting. An instructor can pick up a keyboard and drop it or bang on the side of the computer to show that the system is not easily broken. Similarly, in a F2F setting an instructor can demonstrate procedures for effective system and file use, and show the students that the systems will not break if the user makes a mistake. An instructor can also read student's facial expressions, body language, and even gauge apprehension in a student's voice and re-assure the fearful student, assuming that students are not being eloquent enough to hide their emotions.

Unfortunately, in an asynchronous web-based learning environment, an instructor is not able to interact directly in person with an entire class (i.e., some students may be working in a different time zone) and to re-assure the group as a whole. Nor can an instructor gauge body language or tone and inflection of voice to detect that fear may be an issue. Furthermore, both email web-based conferencing

interactions, which are essential to web-based learning, are not direct forms of interaction but are considered mediated transactions (Harasim, 1993; Lapadat, 2002). Because of these dynamics, fear removal is perhaps one of the most challenging components to effectively facilitate, primarily because the F2F cues are missing and students cannot be led through their anxieties. Using video or audio files to present what would be presented in a traditional F2F setting was, until recently, not a feasible option. While it is possible to use compressed video or audio to communicate with students now, there still is the issue of getting students over the initial fear or anxiety that they may have to operate this type of software for the very first time.

Because of these limitations, the asynchronous nature of the course, and the need to keep pages small to load quickly on dialup connections, the actual design and layout of the course main Webpage had to be a primary factor in calming the fearful student. The main page (and the entire site for that matter), by design, is very simple and uncluttered. Students are not overwhelmed by choices on the main page, and a large "Getting Started" heading was strategically placed to be one of the first items noticed on the page (Figure 4).

The actual Getting Started instructions (referred to as First Steps) were broken down into 4 simple steps (Figure 5). The items in the four steps were designed to lead a student through the initial familiarization with the course. Students were not required to actually complete any assignments but were still required to familiarize themselves with the course navigation and layout, to fill out a consent form (data was also used to create student profiles in the course administration system), to join the course conferencing system and, finally, review the introduction module.

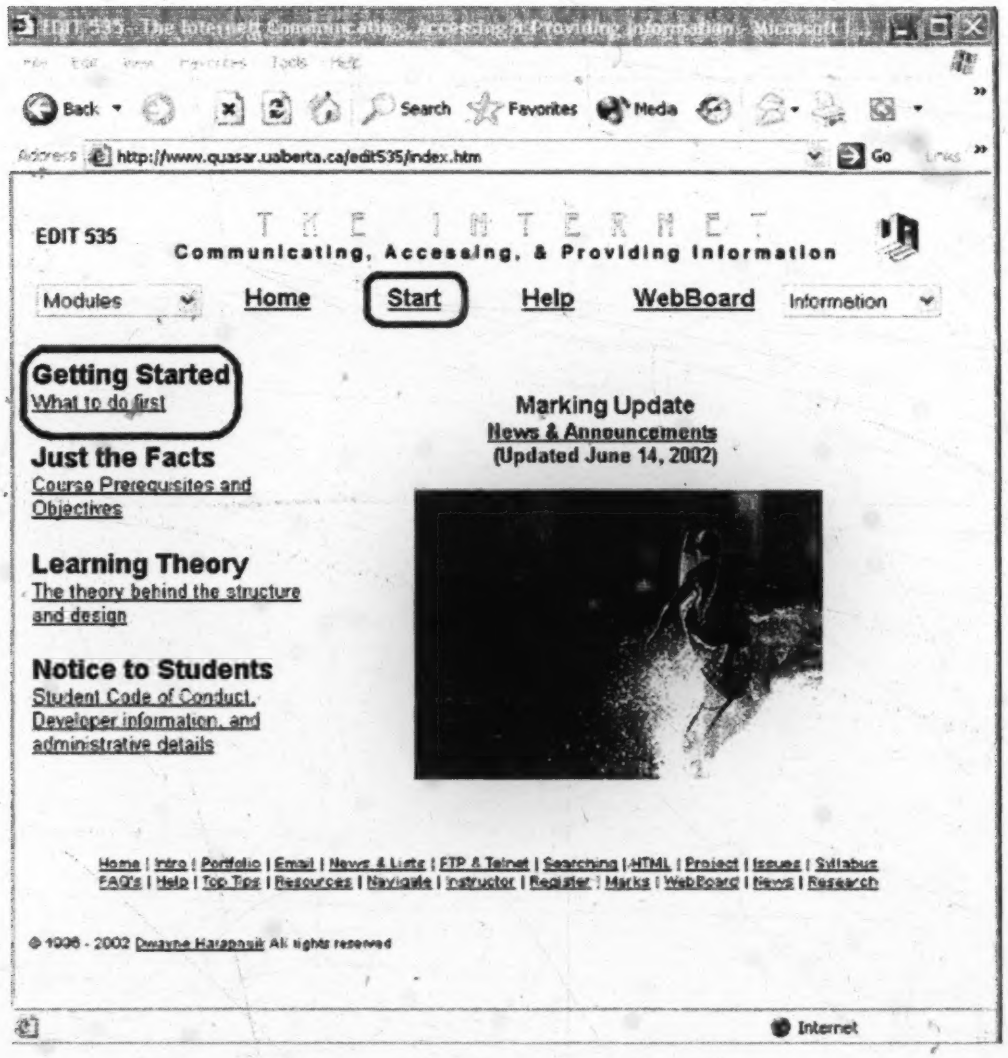

Figure 4. Simple design and layout of *Nethowto* main page

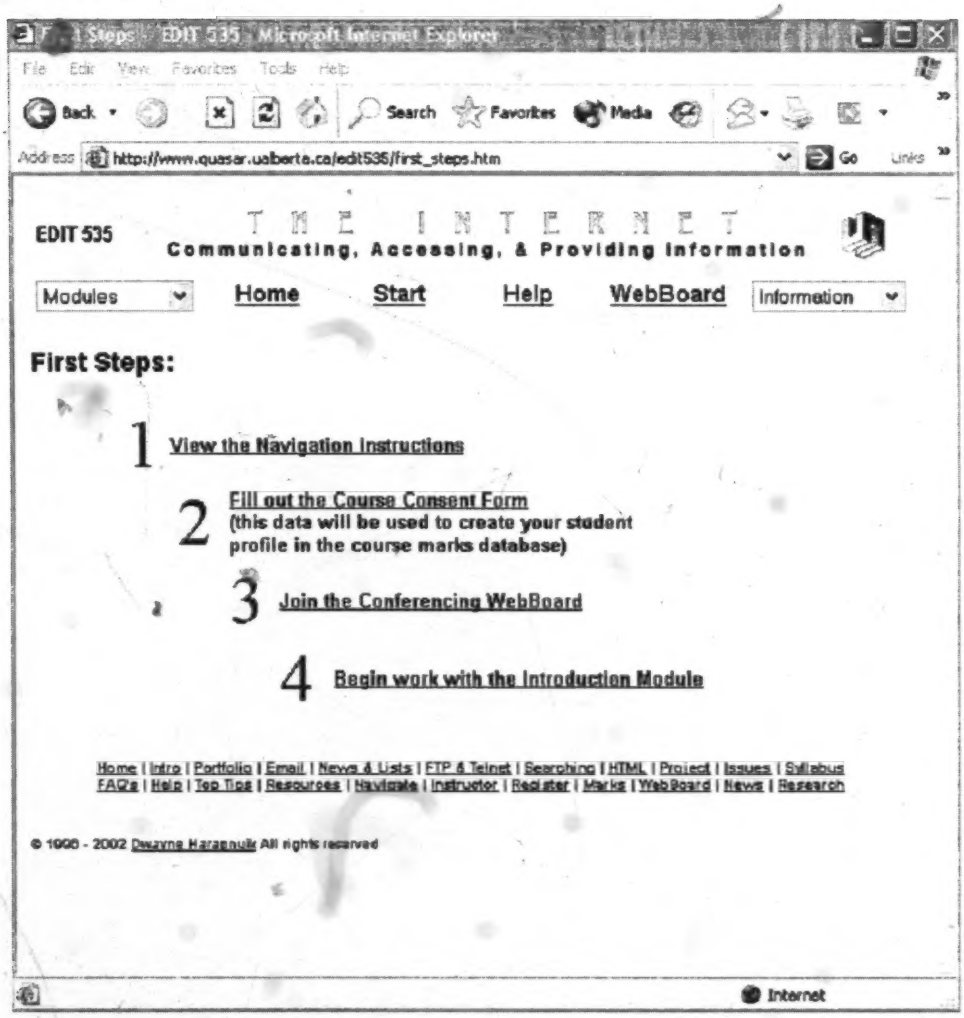

Figure 5. Getting started steps

The intention of the Getting Started page was that by following the four steps, fearful students would gain enough experience and success with the course to help them overcome or, at minimum, deal with their fear. While these four steps appear to be linear SI type system super-imposed on a minimalist structure, students can do the steps out of sequence or ignore them all together and still proceed through the course, so the sequencing aspect of SI is not a factor in student progression. At some point, and in some order, students will have to fill out the consent form, join the conferences

and begin work on the introduction module. These instructions are simply presented in their most logical order. Throughout the steps, students were encouraged to contact the instructor directly if help was needed. Students had (and currently still do have) access to the course instructor via email, the web-based conferencing system called the WebBoard™ and by phone.

Despite the design, layout and organization of the Getting Started instructions, some students still had difficulty getting started. When this issue first surfaced, a variety of design variations were experimented with to lessen the getting started problems. A closer examination of the getting started problem revealed that the students who were reporting difficulties in getting started had not followed the getting started steps. Subsequently, students who reported problems getting started (via email, the Web-base conferencing system called the "WebBoard™", or phone) were directly questioned as to what the exact problem was they were experiencing.

Over 75% of the students who reported problems getting started indicated that they had not followed any of the four steps; many had admitted to not even visiting the course Website. Students who had not visited the website or not followed the getting started steps were given the course URL and if necessary, talked through the basic use of a browser, and then were instructed to go the course and follow the getting started steps. Upon a follow up query, these students reported that the getting started page did answer all their questions, and they were able to proceed with the course with little additional difficulty. Many of these students who initially expressed apprehension also reported that once they worked through the first steps, their anxiety levels decreased, and they had gained the confidence they needed to proceed.

Stimulation of Inquisitiveness

With the fear abated, the adult learner's intrinsic (but often suppressed) inquisitive nature can be stimulated and encouraged to flourish. Nethowto students are actually encouraged to read the "HHHMMM??? What does this button do?" approach article that is linked on the main page. The article details the ten

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inquisitivist principles and makes an argument for this approach as the basis for Web-based instruction.

The design of the course forces the students to make many more decisions and to extensively investigate and use computer programs more than they are often used to. For example, in the first formal assignment, students are asked to submit an email attachment, but they are not required to use a specific email client or word processor. Students are directed to resources that they can use to learn about email, email clients and the sending of attachments. In addition, students are required to investigate one aspect of attaching documents that most people take for granted, the encoding format. The only way that students can be sure that they submit an attachment in the required MIME encoding format is to explore the online Help within their email clients or on the Web. This starts the whole inquisitivist process. Students quickly learn that a small amount of investigation within the programs they are currently using will reveal the results that they need. The immediate success students experience is a crucial aspect of inquisitivist design that will be further expounded in the getting started fast category below.

Using the System to Learn the System

All training must take place on the actual system that is being learned. Every aspect of *Nethowto* is conducted online. Students are actually using the Internet while learning about all forms of Internet communication and accessing and sharing of information. In addition to the students conducting all aspects of the course online, the instructor of the course (the author) does not maintain an office at the University of Alberta campus but conducts all aspect of design, development and delivery of the courses completely online. In essence, the instructor uses the system to teach the system.

Getting Started Fast

Adult learners often have other interests than learning a new system. The learning they undertake is normally done to complement their existing work. The

"welcome to the system" prefaces and other non-essential layers in an introduction are often ineffective uses of the learner's valuable time.

The Getting Started/First Steps sections of the course are designed to give students confidence in their initial experience with the course. The simple procedures that students are asked to follow, like joining the course conferencing system and using an online form to submit their student information, contribute positively to their learning experience. Similarly, all the information that students are required to review in the Getting Started section of the course is intended to contribute immediately and positively to their learning experience and ultimately give the learner confidence in the system.

The first assignment, submitting an email attachment, is relatively simple to complete and is strategically placed and used to give students immediate success. Students usually make the email submission immediately after moving through the Getting Started section and a consistent effort is made to insure that students receive an immediate reply and have rapid confirmation of their success. Students who have difficulty with the assignment are quickly directed to the resources that they need to use to have success in the assignment. The goal of the instructor is to reply to students within three to four hours of their first assignment submission (if the assignment is submitted during regular business hours the reply is often processed in a matter of minutes).

Discovery Learning

There is no single correct method or procedure prescribed in the course. Allowing for self directed reasoning and improvising through the learning experience requires the adult learner to take full responsibility for their learning.

Throughout all course modules and course work students are given specific assignment requirements that specify what should be submitted or included in the portfolio. *Nethowto* students are also given the freedom to choose the programs they use to complete the assignments. Unlike many technology related courses that provide step-by-step instructions on conducting a specific procedure with or within an

application, students are pointed to web-based resources that deal more with the general concept than with the specifics of a particular application. This is not to say that step-by-step instructions are not necessary. There is a section of each module that points to links for the more common applications used in the course (FTP, Telnet, Text or HTML editors etc.) that do provide the step-by-steps instructions for those who are most comfortable with this form of instruction, or are not comfortable with learning by doing, experimenting or exploring.

All module coursework culminates in the course portfolio in which students have to display all they have learned in a Web site (part of the learning process is learning HTML). Students are told what is to be included in the portfolio but are not explicitly instructed on how it should be created or formatted. Instead of a rigid recipe or formula, students are given the freedom to construct their portfolio in any way they choose. Links to instructional sites on HTML, Web design, graphics utilization and usability are provided but students still required to learn how to apply the technical aspects of creating a web site to their portfolios and projects. Marking guides (details on what markers will be looking for) and examples of previous student work are provided to offer students additional guidance on what is ultimately expected. Although many students simply copy the format of previous student work, some students embrace this freedom and come up with innovative ways to display their portfolios. These innovative portfolios are often included in the examples, but unfortunately most students choose the safety of copying the simple or tried and true designs.

Modules can be Completed in any Order

Materials are designed to be read or completed in any order. Students impose their own hierarchy of knowledge, which is often born of necessity and bolstered by their previous experience. This helps to eliminate the common problems that arise from material read or completed out of sequence.

Providing a structure for openness requires a great deal of planning and structure. The course is modular and each module, except for the portfolio, which is a

compilation of all other modules, can be completed in any order. The module naming conventions do not include numbers or alphabets to prevent any suggestion of a specific order. Despite the effort to not prescribe an order and even though the modules can be completed in any order, most students follow the sequential listing of assignments in the course navigation structure. This too is part of the design. This order has been established for those students who lack confidence or experience with technology. By following the sequence of modules, students who lack technology confidence and experience can gain enough confidence and experience from the modules to successfully complete the portfolio and final project. While this sequential ordering of the modules may appear to be a linear SI type system super-imposed on a minimalist structure, students can still do the modules out of order so the sequential ordering of the modules is not as significant as it would be in a true SI system. Due to the very divergent capabilities of students in the course, the structure of the course has to serve both students with little experience and those who may be very experienced. Students who need the order and structure can use the implied order from the navigational listing and students who have the confidence to work on course modules in their own order have the freedom and opportunity to do so as well.

It must be acknowledged that even though there is no required order for completing the modules, the portfolio does require that the other minor assignment modules be completed first. A hierarchy of knowledge for the course is imposed by the two main course assignments. In order to complete the portfolio, students must learn HTML (hypertext mark up language) and complete the other assignments. In order to complete the final projects and earn a satisfactory grade, gaining experience in HTML development (either with a text or HTML editor) through building the portfolio is the most logical path for students to follow.

Supporting Error Recognition and Recovery

Errors must be accepted as a natural part of the learning process. Since there is such a pervasiveness of errors in most learning, it is unrealistic to imagine that errors can be ignored. Error recognition and recovery strategies need to be

implemented to enable learners to learn from their mistakes instead of being trapped by them. The use of FAQ's, Help Forums and other help strategies should be implemented to deal with the errors and problems that arise.

Once again the asynchronous nature of *Nethowto* necessitates that the course itself provide support for error recovery. The Help link is strategically placed 1/3 of the way down the page and in the center (which is the area of the screen where a users eyes will first fall). The web-based conferencing system and the Help conferences are also readily available. An online FAQ and multiple admonitions to ask for help are placed strategically throughout the course.

In addition to the actual design, layout and structure of the course, the students are given immediate feedback (usually within minutes or, at most, hours) on their first assignments and also receive detailed feedback (complete with written explanations) as to what mistakes were made on their portfolios. Students are encouraged to learn from their mistakes in the portfolios and apply what they have learned to the final project. Students are given the option of submitting their portfolios three weeks prior to the end of term to receive an evaluation that will help prevent them from making the same errors on their final project that they made on the portfolios and to give them a better of understanding of is expected in the creation of a web site.

When the students contact the instructor for help, they are first directed to the location in the course pages where the answer may lie. If the students report that they had reviewed the support material and were still not able to find a solution to their problems, they are then directed to additional support material where the answer could be found. If the additional support materials were not adequate, the students are then directed to even more information to help them determine the answer on their own. It is extremely important for the instructor to judge the level of frustration students may be experiencing and, if necessary, give them a direct answer sooner than later.

To insure that students Help needs are met, all students are regularly queried about the course Website and asked for suggestions on making changes to the course

that would save them from having to contact the instructor, or use the Help forums for assistance.

Forum for Discussions and Exploiting Prior Knowledge

Adult education dealing with technology is often conducted through alternative delivery methods. Distance education, web-based instruction and other alternative delivery methods can isolate students. Providing a conferencing system for the replacement of F2F interaction is a crucial component of any alternative delivery program. Most adult learners of technology are experts in other areas or domains. Understanding the learner's prior knowledge and motivation and finding ways to utilize it is one of the keys to effective adult training. In addition, adult learners can share their expertise or assist each other and should be encouraged to use the conferencing system to facilitate social interaction.

The WebBoard™ conferencing system is an effective forum for enabling students to provide each other with assistance. To encourage students to assist each other (not an easy thing to do in a competitive academic environment where students strive to be at the top of departmental or faculty mandated marks distributions) students are assessed a Help participation mark based on the quantity and quality of their participation—this mark is worth 10% of their final grade. One of the most common responses to the Help forums is how useful and helpful it is. It is not uncommon for a number of students in each session to state: "I could not have made it through the course without the Help forums." In addition to help related issues, students are required to start a topic discussion on an area that they are particularly interested in. This topic discussion is also required and contributes toward the student's Issues participation mark.

The WebBoard™ forums are an example of what Vygotsky coined as social learning. In his theory he stresses that social interaction is a critical component of situated learning because learners become involved in a "community of practice" and adopt the beliefs and behaviors of that community. Experts (experienced individuals) within the community often share the beliefs and behaviors of the community

unintentionally or model the proper conduct through their behavior. Newcomers interact with the experts and then they themselves move into the community to become experts. This process can be referred to as legitimate peripheral participation and occurs unintentionally (Lave & Wenger, 1990).

Some students who admit (in the WebBoard™ forums) to being normally reserved or who might not even participate in a F2F setting are encouraged by the equality they find in the WebBoard™ environment and embrace this component of the course. It is not uncommon for these students to log on daily and to participate in most (if not all) discussions. Students who may be near completion of the course often provide encouragement to students who have joined the course late or have simply started late. This exchange of information and knowledge, and sense of community is one of the most positive aspects of this course. It is not uncommon for some students to go out of their way while traveling to find a computer to log on and continue to participate in their special virtual community.

Despite never meeting the students F2F, it was possible for me to get familiar with the students through monitoring their email and web-based conferencing communications. In one sense, it may be easier to get a better understanding of a student's personality and needs than in a F2F setting because of monitoring all their web-based communications. This advantage over the F2F setting is off set by the disadvantage of not being able to read students' non-verbal expression, body language, and general reactions.

Real World Assignments

"Make-work" (purposeless) projects are often not an effective use of a student's valuable time. All assignments must have a real world application. All Nethowto assignments are genuine "real world" tasks that almost any information professional that uses the Internet as a tool would do on a daily basis. The Internet offers much more than the just the Web or email, and students are required to use a variety of the Internet tools (Listserv, Usenet, Telnet, FTP, IM, HTML and Search engines) to complete their assignments which focus on the information that can be

gathered, shared or moved using the assortment of Internet tools rather than focusing on the tool themselves. The goal of the course is to give students experience in communicating, accessing, and providing information on the Internet. The emphasis is on the information and not the tools used to access or provide the information. Technology is put in its place and is relegated to its rightful role as an information access tool.

Optimal Training Designs

Feedback facilities like online surveys or email should be used to allow learners to immediately provide feedback on any aspect of a program. Problems with instructions, assignments, wording or other problems should be immediately addressed and corrected. Instructional models are not deductive or prescriptive theories—they are descriptive processes. The design process should involve the actual learner through empirical analysis so that adjustment can be made to suit the learner's needs. "Develop the best pedagogy that you can. See how well you can do. Then analyze the nature of what you did that worked" (Bruner, 1960, p.89).

The *Nethowto* course has evolved to its present state because of the students who have worked through the course and provided feedback. Student feedback is immediately acknowledged, and if a particular portion of an assignment instruction (or any portion of the course for that matter) requires modification to bring clarity, this is done immediately. If the same questions are asked repeatedly, the subject of those questions is addressed and that aspect of the course is modified to provide less confusion and to improve clarity. When significant changes are made as a result of student's feedback, announcements are made on the course News and Announcements page to insure that all students are made aware of the change. Designing and developing an effective learning environment is a dynamic process that requires immediate responses to problems that arise. Students are encouraged to fill out detailed online evaluation forms that provide additional information for continued improvements.

Delivery of Nethowto

Because the inquisitivist approach was developed through the delivery of the *Nethowto* course, it could be argued that the inquisitivist approach is not only an effective approach for the design of web-based instruction, but it is also an effective approach for the delivery of web-based instruction.

Another factor in the delivery of *Nethowto* is that as the instructor I do not maintain an office on the University campus but I work at a distance and use the same Internet tools that my students are required to use. Because the system (the Internet) is not only being used by the learners to learn the system but also by the instructor to teach the system, the students are not asked or required to do anything that is not practical or that is simply not possible with the Internet. Leading or teaching by example is often one of the most effective ways to lead and to teach. When the students learn that their instructor not only "talks-the-talk" but also "walks-the-walk" and is sensitive to the genuine problems that arise with web-based instruction (in the case of the instructor, telecommuting) because the instructor uses the same system that they do, attitudes toward the course and this approach to learning tends to become quite positive.

Summary

Necessity often breeds ingenuity. The evolution of the inquisitivist approach is tied so closely to the design, development and delivery of *Nethowto* that one could argue that the approach itself evolved out of necessity. The ten components of the inquisitivist approach are evident in the design and delivery of *Nethowto* (some more so than others), and while some of the components may be applied more effectively than others they all combine to provide an approach to web-based instruction that is practical and effective for the students and the instructor.

CHAPTER FIVE: METHOD

Introduction

The first part of this study involved a comparison of the grades of the final projects produced by a sample of *Nethowto* and comparison group students, and a comparison of the scores of the level of student satisfaction collected from both groups. The mark on the final project was used as a measure of student success in learning the concepts taught in the course and ultimately as a measure of the effectiveness of the instructional approach. Both the *Nethowto* sample and the comparison group involved undergraduate students enrolled in courses that had very similar content. Both the *Nethowto* and comparison group course were designed to increase student Internet experience, knowledge and communications skills. The *Nethowto* sample differed from the comparison group in that the *Nethowto* course was conducted completely online with no F2F interaction and the course itself was designed and delivered using the inquisitivist approach. In contrast, the comparison course was delivered in a F2F setting using a more conventional approach of systematic instruction. The *Nethowto* sample also differed from the comparison group in that the *Nethowto* students chose the course as an elective while it was a requirement for the comparison group. Another significant difference was the *Nethowto* group participated in the conferencing components of their course with graduate students who were enrolled in the graduate version of Nethowto.

The second part of the study involved testing both the *Nethowto* sample and the comparison group prior to the start of the courses to determine a baseline assessment of their thoughts, attitudes and anxiety about computers. Both groups were tested a second time after completing their respective courses to determine what impact the course had on their thoughts, attitudes and anxiety about computers. Finally, the Keirsey Temperament Sorter (similar to the Myers Briggs Type Inventory) was used to determine for what personality type inquisitivism is more appropriate and was only applied to *Nethowto* students.

Research Hypothesis

To determine if inquisitivism is an effective learning approach for adult learners who are required to learn new information technologies in a web-based setting, the following research hypothesis were tested:

1. Students who learn the same course content via the inquisitivist-based *Nethowto* course will do better on the final project than students in the comparison group.
2. Students who learn the same course content via the inquisitivist-based *Nethowto* course will be more satisfied with their learning experience than students in the comparison group.
3. Students in the *Nethowto* will have a greater reduction in fear of technology than students in the comparison group.
4. The inquisitivist approach will be a more effective form of course delivery and instruction for the personality types (as defined by the Keirsey Temperament Sorter) than for others .
5. Students will face specific challenges as a result of the inquisitivist approach.

Design

A quasi-experimental design (nonequivalent groups design) method was used to compare *Nethowto* students to a comparison group of students. Participants were asked to complete four instruments at the start of the *Nethowto* and comparison group courses. Demographic data of the two groups were collected from the pre-course demographic survey. A baseline assessment of student thoughts, attitudes, and anxiety about technology were also obtained by administering pre-course surveys. To determine their personality types, students in the *Nethowto* course were asked to complete the Keirsey Temperament Sorter.

The thoughts, attitudes, and anxiety about technology were again reassessed after students had completed the course. The post-tests were administered to determine the change in the students' thoughts, attitudes, and anxiety about technology.

Participants

Nethowto Sample

The first sample came from an undergraduate class of 58 students taking *Nethowto* as an elective course online at the University of Alberta during the winter 1999 session. This experimental sample was used to assess the degree to which students learned the online course content and their level of satisfaction with the course. The sample was compared to the 23 students in the F2F comparison group.

Comparison Group

Obtaining a suitable comparison group was a significant challenge. Instructors of a number of potential comparison groups were asked but refused to participate in the study. At the time the study was originally planned (1997-1998) the Internet was still a relatively new media for the delivery of courses but the hype surrounding the Internet was just starting to reach its peak. Some of the instructors who refused to participate indicated that they feared a comparison between their classes and the *Nethowto* would not be a fair comparison. Others indicated that their courses were not based on the traditional systematic instruction model and therefore did not fit the study requirements. Some gave no reasons or stated the lack of time as their reason for not being able to participate. An instructor at the one Alberta University agreed to allow his class to be used as a comparison group. This undergraduate Educational Technology class had a total enrollment of 27 students and a total of 23 students volunteered to participate in the study. The class content (study of the Internet and Internet communication) was virtually identical to the *Nethowto* course so the comparison group promised to offer a useful comparison. The requirements for the final project in both courses were so similar that the comparison group instructor agreed to use the final project assignment description and marking criteria (Appendix A) that were used in *Nethowto*.

To insure that the *Nethowto* and comparison group were a valid comparison, a demographic survey was conducted to assess the students' similarities and differences. The initial response rate of the F2F comparison group of 85% was very

promising for the pre-course surveys and for the USRI (satisfaction) survey administered just prior to the end of term, but the response rate dropped to 17% (4 students) at the posttest stage.

Measures

Instrumentation and Data Collection

All data for this study, except for the results of the final projects, were collected using online survey instruments in the form of web-based HTML forms that extracted the submitted data using Active Server Pages (ASP) (Microsoft, 2002a) and the data were entered into a series of Microsoft Access databases (Microsoft 2002b) that were stored on a Microsoft Windows Server (Microsoft 2002c). I was the only one that had access to the data.

HTML forms and the ASP process were used to collect the data because the *Nethowto* course was conducted completely online with no F2F interaction. Due to their distance from University of Alberta and to establish a consistent data collection procedure, a mirrored set of survey forms and databases were created for the comparison group and their responses were also collected online. The comparison group instructor and I believed that since the content of the comparison group course focused on the use of the Internet, the use on online forms for data collection would not adversely affect the comparison group students.

Comparisons of Academic Success

To determine how well students learned the course content; Web sites submitted by students from both groups were evaluated using the same criteria. The marking criteria included an assessment of the project's purpose, relevance, appearance, navigation, organization, level of difficulty and content. The instructor of the comparison group agreed that these had been the criteria the students were told would be used to evaluate their sites. The full marking guide can be viewed in Appendix A. Evaluators scored the Web sites using the same criteria given to students in the sample and comparison group. To eliminate any marking bias the evaluators were "blind" to the group membership. The comparison group's final project websites

were moved to a University of Alberta web server to insure that final project URLs did not indicate the site's group membership. In addition, any institutional identifying characteristics (University logos, names, etc.) were removed from the final projects to insure that the evaluators were "blind" to group membership. Finally the evaluators were given a list of randomly ordered URLs for the final projects from the Nethowto and comparison groups and a corresponding 5-digit code number to which the evaluators assigned a grade. The key to the code that matched the project URL to a particular group was maintained by myself and was not made available to the evaluators. Means of the final scores from both the *Nethowto* and the F2F comparison groups were compared.

Comparisons of Student Satisfaction

To determine if students were satisfied with their learning experience, the students in both groups were asked to complete a modified version of the University of Alberta Universal Student Ratings of Instruction (2003), a course evaluation form that every instructor of a course with an enrollment of more than eight students is required to administer in that course. This version of the Universal Student Ratings of Instruction (USRI) was modified/developed to evaluate on-line courses and excluded two questions from the traditional USRI that dealt with F2F interaction. The eight questions in the USRI (Appendix B) were intended to solicit student response regarding quality of instruction and the quality of the course. Results for the groups were evaluated. The means of the responses were compared with the response to "Overall, this was an excellent course" being the most important evaluation of student experiences.

The literature on student ratings of instructions reveals that there is great deal of research that supports and confirms the reliability and validity of this type of instructional evaluation. Marsh indicated that:

> Probably students' evaluations of teaching effectiveness are the most thoroughly studied of all forms of personnel evaluation, and one of the best in terms of being supported by empirical research...(Marsh, 1984, p. 749).

More, recently, d'Apollonia and Abrami conducted a meta-analysis on student ratings of instructions and concluded that

> "there was a moderate to large association between student ratings and student learning, indicating that student ratings of General Instructional Skill are valid measures of instructor-mediated learning in students" (1997, p. 1202).

The literature also suggests the reliability of a variety of student rating forms to be approximately 0.90 (Aleamoni, 1987; Marsh, 1987, Marsh & Roche, 1997). With respect to the USRI used in this study, the University of Alberta had adopted the USRI institution wide in 1994 and continues to use the evaluations as one factor in evaluating courses and instructor performance. Computer Network Services (2003), the University of Alberta department responsible for scoring the evaluations recently reported an alpha of 0.90 based on an n of 4255.

Supplemental Nethowto Student Satisfaction Responses

In addition to comparing the sample and comparison group results, the results of student evaluations of *Nethowto* undergraduate students from the fall of 1998 to the winter session of 2001 were examined. This supplement has been included to provide a broader perspective on the student satisfaction levels of *Nethowto* students over an extended period of time. It was also made possible because of the data collection instruments established when the course was originally set up and that were unaltered in order to collect longitudinal data for future research (See Appendix F).

Both the *Nethowto* and comparison group students were asked to voluntarily fill out a series of post course questionnaires. A response rate of only 17% (4 out of 23) from the comparison group students prevented any meaningful comparison. Slightly more than 36% of *Nethowto* undergraduate students filled out this post course questionnaire from the fall of 1998 through the winter session of 2001 resulting in sample size of 258 for this analysis. The following responses were selected and analyzed from the questionnaire because these questions dealt specifically with student perceptions of the amount they learned in the course, how

satisfied they were with the inquisitivist approach and if they found the approach effective:

1. I learned a lot in this course.
2. I found the structure of the course conducive to learning.
3. I would have preferred to take this course via a traditional 'Lecture/Laboratory' mode.
4. I would take other courses offered in this online, individualized instruction manner.
5. This course helped me grow from one level of knowledge about and familiarity with computers and the Internet to a significantly higher level.
6. I found the Learning Theory (inquisitivism) used in this course to be effective for this type of instruction and how are these challenges overcome.

Was Fear or Anxiety Reduced – Pre vs. Post Testing

To determine if students had a reduction in fear of technology, students in the both groups were asked to complete three questionnaires: Computer Anxiety Rating Scales (CARS), Computer Thoughts Survey (CTS), and General Attitudes Toward Computers Scale (GATCS) prior to the start of the course and once again upon completion. These questionnaires (Appendices C, D, and E) were developed during the mid to late 1980s by Rosen, Sears and Weil at California State University to measure technophobia. Through their work, these researchers have defined technophobia as (Rosen, Sears, & Weil, 1987; Rosen & Weil, 1992):

a. anxiety about present or future interactions with computers or computer related technology;

b. negative global attitudes about computers, their operation or their societal impact; and/or

c. specific negative cognition or self-critical internal dialogues during actual computer interaction or when contemplating future computer interaction.

In the development of these three questionnaires, 14 studies were completed with thousands of university students, elementary and secondary school teachers, business people and secondary school students. Through a continual refinement process, these instruments have become quite reliable. The CARS and CTS demonstrate a Cronbach alpha of 0.90; the GATCS is also reasonably reliable (alpha =0.80), but not nearly as reliable as CARS and CTS. All three questionnaires have also shown a high degree of validity in the 14 studies that have been completed with thousands of university, students, elementary and secondary school teachers, business people and secondary school students (Rosen & Weil, 1992).

In CARS, students were asked to consider how they dealt with experiences with technology that elicited apprehension or anxiety. Students selecting a point on an anxiety scale revealed the level of anxiety or apprehension they felt (not at all, a little, a fair amount, much, very much). In the CTS, students were asked to respond to how they thought in specific situations involving computers and technology. Once again, students were asked to select a point on the same anxiety scale used in CARS. Finally, in GATCS students were asked to answer general questions about technology in society by selecting a point on a Likert (Clayton, 1984) type agreement scale (strongly disagree, disagree, neutral, agree, strongly agree).

The means of the pretest scores were compared against the means of posttest scores to determine if there was a significant variance in anxiety, attitude or thoughts towards technology. The original design of the study intended that both the sample and comparison groups fill out the pre and posttest questionnaires. Only 4 of the 23 comparison group students completed the posttest questionnaires so a comparison between the comparison group and the *Nethowto* was not possible.

Is Inquisitivism More Appropriate for Certain Personality Types?

To determine if inquisitivism is more appropriate for particular personality types, *Nethowto* students were asked to complete the Keirsey Temperament Sorter (KTS) II, at the beginning of the course. KTS a personality type indicator similar to the Myers Briggs Type Inventory (MBTI). Keirsey's model of temperament is based on people's "core needs" while the MBTI model (sometimes referred to as the Jungian model) of personality is based on cognitive function (Keirsey, 1998). Despite this fundamental difference, both are considered reputable personality type inventories. There is a 0.75 correlation between MBTI and KTS (Keirsey, 1998). The KTS inventory groups participants into one of four temperament types or categories: Guardian, Artisan, Idealist, and Rational, each of the four types having four variants (Keirsey, 1998). According to KTS, individuals of different temperament types are fundamentally different. They believe differently; they think, cognize, conceptualize, perceive, understand, comprehend, and cogitate differently, and more importantly (for this study), they responded to different styles or types of instruction differently. The temperament type was used as a factor in an Analysis of Variance (ANOVA) to determine what personality types performed best in the inquisitivist approach.

The KTS and MBTI are both ipsative measures that do not lend themselves to traditional (normative) measures of reliability and validity. Despite stating that there are no "official" statistics on the reliability and validity of Temperament Sorter, Keirsey offers the following explanation for the sorter's validity:

> The Sorters are not "tests" per se, so a validity statistic wouldn't make much sense. The Keirsey Sorters are designed to help people better understand themselves, so its up to the individuals to determine how valid the assessments are for themselves. Some people find their descriptions a revelation, and others don't care. Informally, they are valid in the degree that millions of people have found them useful and the discovery of their usefulness for about twenty-five years has been strictly by word of mouth (2002).

With respect to reliability, Keirsey indicates that the sorters are as reliable as MBTI and suggests that people will get the same result 75-80% of the time. The MBTI manual (Briggs Myers, McCaulley, Quenk & Hammer, 1998) indicates that people scored the same on a subsequent administration of the MBTI instrument about 75 percent of the time. Only about 1 in 1,000 persons will change on all four scales. When change does occur, it is more likely on those scales where the original preferences score was slight. Like MBTI, Keirsey adds that that reliability and validity are partially a function of temperament and many people find their assessments the same after many years or decades.

CHAPTER SIX: RESULTS

Introduction

In this chapter we will be comparing the results of experimental group with the comparison group. Even though we stated our research hypothesis in the form of as well as or better than, there is no a priori reason to expect that students in the experimental group will do better than those in the comparison group, hence two tailed tests will be used throughout. The first section presents demographic information and comparison of the *Nethowto* sample and comparison group. This is followed by the results and statistical analysis of the research hypothesis. Finally, challenges to inquisitivism or more specifically challenges that students encounter are presented.

Nethowto Demographics

From a total of 58 students registered in the winter session of 1999 in the *Nethowto* course, 54 (79%) students filled out the demographics survey. Just under two thirds (61%) of the survey participants in the *Nethowto* sample were education students. The remaining students were from the faculties of Business (15%), Arts (7%), Science (4%) and a variety of other faculties. Slightly over 74% of these students worked at a distance from their homes; 15% worked from their offices and the remainder, slightly over 11%, worked from the University of Alberta computer labs. The average age of the students was 33 years and 61% were single with 72% having no dependents. Just over half (54%) of the students sampled were female and 46% were male. Over two thirds of the students were employed either full (31%) or part-time (39%). More than half (55%) of the students had no formal computer training and 41% had taken only 1 or 2 computer courses (see Table 2 for full data).

Comparison Group Demographics

The comparison group had a registration of 27 students in the winter session of 1999 and 23 (85%) students agreed to participate in the study and filled out the demographic survey. Table 2 presents the demographics from the comparison group.

Table 2 *Nethowto* and comparsion group demographics

	Nethowto		Comparison	
Faculty	n	%	n	%
Education	33	61.1	14	60.9
Business	8	14.8	6	26.1
Arts	4	7.4	1	4.3
Science	2	3.7	1	4.3
Other	7	12.9	1	4.3
Total	54		23	
YEAR OF STUDY				
5+	3	5.5	2	8.7
4	40	74.0	19	82.6
3	8	14.8	2	8.7
2	3	5.5		
Sex				
Male	25	46.3	13	56.5
Female	29	53.7	10	43.5
Study Location				
Home	40	74.1	13	56.5
Office	8	14.8	1	4.3
Lab	6	11.1	9	39.1
Marital Status				
Single	33	61.1	20	86.9
Married	21	38.8	3	13.1
Dependents				
None	39	72.2	21	91.3
1-2	15	27.8	2	8.7
Work				
No	17	31.5	13	56.5
Full	16	29.6	1	4.3
Part	21	38.8	9	39.1
Comp Training				
None	30	55.5	3	13.0
1-2	22	40.7	11	47.8
3-5	2	3.7	8	34.8
5+			1	4.3
Age				
Average	33		29	
Range	22-44		21-37	

Just over 60% of the survey participants were education students. The remaining students were from the faculties of Business (26%), Arts (4%), and Science (4%). The average age of the students was 29, 87% were single, and 91% had no dependents. Slightly over half (56%) of the students sampled were male and 44% were female. Most of the students were either in their fourth (83%) or fifth (9%) year of studies and all students were required to take the comparison group course. Just under two thirds of the students were un-employed and only 39% worked part time. Under half of the students (48%) had taken 1 or 2 computer courses, 34% had taken 3-5 computer courses, 1 student had a computer certificate (involved more than 5 computer courses) and only 13% had no formal computer training (see Table 2 for full data). The comparison group course used a more traditional form of systematic instruction as its foundation, met F2F, conducted traditional labs, and followed a regimented schedule of delivery.

Differences Between Nethowto and Comparison Groups

One important difference between the *Nethowto* and comparison group is that the comparison group was required to take their course while the *Nethowto* group chose to take the course as an elective. A second difference was that 45% of the comparison group students had taken 1or 2 computer courses and the rest of the comparison group had even more formal computer training (one student had a computer certificate). In contrast, 55% of the *Nethowto* group had no formal computer training and the remaining students who did have formal computer training had taken only 1 or 2 courses. In addition, the comparison group was slightly younger (29 vs. 33), had a higher number of single students with an even lesser degree of dependence (children). Another difference noted was that over half of the comparison group did not work and the remaining portion only worked part-time. In contrast, over two thirds of the *Nethowto* group worked either full or part-time. Finally the *Nethowto* class was taught in conjunction with a graduate level class, which resulted in undergraduate and graduate student interaction.

Academic Success Comparisons

To compare the results of the final project scores for the *Nethowto* and the comparison group, Web sites submitted by students from both groups were evaluated on the same criteria. The mark on the final project was used as a measure student success in learning the concepts taught in the course and ultimately as a measure of the effectiveness of the inquisitivist approach. Evaluators, who were "blind" to the group membership, used the same evaluation criteria given to students in both the *Nethowto* and comparison group and scored the web sites. The final project Web sites were scored out of 50 points that was based on an assessment of the project's purpose, relevance, appearance, navigation, organization, level of difficulty and content (Appendix A). Students were allowed to choose their own topics for the final project to insure that motivation for the projects was high. One of the goals of the final project assignment was to demonstrate that the students could take all their newly acquired Internet skills and apply what they had learned in the course through the construction of a web site. Assuming that this goal was met and that students did demonstrate what they had learned in the course, the mean score of 37 (74%) on the final projects for *Nethowto* students demonstrated that these students had learned the course content and were able to demonstrate their newly acquired abilities in the final project.

The first research hypothesis was whether students who learned the same course content via the *Nethowto* course would do better on the final project as those students who learned in a F2F model. The null hypothesis is rejected because an independent t-test (Table 3) revealed that there is a statistically significant difference between the mean final project scores for the *Nethowto* (M=37.27, SD=4.70) and comparison group course (M=28.96, SD=4.32) with the *Nethowto* students scoring higher.

Table 3. Final project scores for the *Nethowto* and comparison groups

	Nethowto (n = 54)	Control (n = 23)
Mean	37.27	28.96
Std. Deviation	4.69	4.32
Std. Error Mean	.64	.90
	t-test	
t	7.18	
df*	75	
Sig. (2 tailed)**	.003	
Mean Difference	8.21	
SE Difference	1.14	

*Equal variances
**$p < .05$

Student Satisfaction Comparisons

To assess the level of satisfaction with their learning experience between the two groups, the means of the response to "Overall, this was an excellent course" were compared. Students in both the *Nethowto* and comparison group were given an USRI evaluation form that included 8 questions (see Appendix B) near the end of the course to assess the instruction they had received and to assess how satisfied they were with their learning experience. The very short instrument (8 questions), the fact that students were still actively working on the course, and the comparison group's instructor having his students fill out the questionnaire during class time resulted in a high response rates for both the *Nethowto* and comparison groups.

The course satisfaction was measured using a Likert scale with 1 being the lowest (strongly disagree) level and 5 the highest (strongly agree). Both groups indicated that they agreed that this was an excellent course: *Nethowto* student's average response to the question was 4.24 and the comparison group student's average response to the same question was 4.13.

An independent t-test (Table 4) demonstrates that there is no statistically significant difference between the mean final project scores for the *Nethowto* (M=4.24, SD=0.82) and comparison group course (M=4.13, SD=0.81) and we therefore fail to reject the null hypothesis. The lack of significant difference indicated that even though the *Nethowto* group satisfactions scores were slightly higher, the difference was not significant enough to argue that the *Nethowto* group was more satisfied with their learning experience.

Table 4. Course satisfaction scores

	Nethowto (n = 54)	Control (n = 23)
Mean	4.24	4.13
Std. Deviation	.82	.81
Std. Error Mean	.11	.17
	t-test	
t	.54	
df*	75	
Sig. (2 tailed)**	.59	
Mean Difference	.11	
SE Difference	.20	

*Equal variances
**$p < .05$

Nethowto Student Satisfaction Supplemental Analysis

The *Nethowto* student satisfaction supplement was included to provide a broader perspective on the student satisfaction levels of *Nethowto* students over an extended period of time. Because the data collection instruments established when the course was originally set up were left in place in order to collect longitudinal data for future research (See Appendix F), the examination of the results of student evaluations of *Nethowto* students from the fall of 1998 to the winter session of 2001 was possible.

Both *Nethowto* and comparison group students were asked to voluntarily complete the same series of post course questionnaires. Unfortunately, a response rate of only 17% (4 out of 23) from the comparison group students made any comparison meaningless. Slightly more than 36% of *Nethowto* students filled out this post course questionnaire from the fall of 1998 to the winter session of 2001 resulting in an n of 258 for this analysis. The following 6 responses (Table 5) were selected and analyzed from the questionnaire (See Appendix F) because these questions dealt specifically with aspects of student satisfaction. More specifically, the questions dealt with student perceptions on the amount they learned in the course, how satisfied they were with the inquisitivist approach and if they found the approach effective.

The responses represent a Likert scale, with 1 being the lowest level (strongly disagree) and 5 the highest (strongly agree). While the students found they learned a lot in the *Nethowto* course they were not as positive with respect to the format and structure in which the course was delivered. Students either agreed or strongly agreed that they learned a lot, would be willing to take similar courses online, and perhaps most importantly, agreed that the course helped them to significantly grow in their knowledge of computers and Internet, but they did not agree that the structure was conducive to learning. In addition, a SD of 1.17 on a mean of 2.28 indicated that even though on average the student responses were close to neutral or leaned slightly toward disagreeing that they would have preferred to take the course via a traditional

lecture/lab format, there was still a significant proportion of students that would have preferred to take the course via a traditional lecture/lab format. This observation is similar to the results of Goodwin, Miller and Cheetham (1991) and Lake (2001). Their research confirmed that students subjected to active learning instruction would have preferred the more traditional lecture format despite having achieved greater success.

Table 5. Student responses to questions about their satisfaction

Student Response	Mean	SD	n
I learned a lot in this course	4.34	.87	258
I found the structure of the course conducive to learning.	3.85	.99	258
I would take other courses offered in this online, individualized instruction manner.	4.05	1.04	258
This course helped me grow from one level of knowledge about and familiarity with computers and the Internet to a significantly higher level.	4.36	.79	258
I found the Learning Theory (Inquisitivism) used in this course to be effective for this type of instruction.	3.90	.91	258
I would have preferred to take this course via a traditional 'Lecture/Laboratory' mode.	2.28	1.17	258

Reduction of Fear

To determine if students in the inquisitivist based *Nethowto* course had a reduction in fear of technology, students from both the groups were asked to complete three questionnaires (Appendices C, D, and E): Computer Anxiety Rating Scales (CARS), Computer Thoughts Survey (CTS), and General Attitudes Toward

Computers Scale (GATCS) prior to the start of the course and once again upon completion (Rosen, Sears, & Weil, 1987; Rosen & Weil, 1992).

Only 4 of the 23 comparison group students who completed the pretest surveys completed the posttest surveys so a comparison between the comparison group and the *Nethowto* was not appropriate. The significant reduction in response rate from the pretest surveys and the USRI satisfaction surveys compared to the posttest surveys could be attributed to the fact that the comparison group students had class time to complete the pretest surveys and USRI (satisfaction) surveys during class time but were allowed to complete the posttest surveys on their own time after their course was completed.

While the response rate from the *Nethowto* course was higher only 11 out of 54 (20%) students completed the posttest anxiety surveys and 10 of 54 completed the posttest thoughts and attitude surveys. A paired sample t-test was conducted and no significant differences were found for the anxiety, attitudes and thoughts pre and posttest scores for these 11 students.

In response to this development additional data were used to determine if there had been a change in anxiety or fear for *Nethowto* students as a result of the inquisitivist approach in a larger sample. Since the CARS, CTS and GATCS questionnaires, which were established when the course was originally set up, were left in place in order to collect longitudinal data, undergraduate *Nethowto* students from the fall of 1998 to the winter session of 2001 were included in this analysis.

The *Nethowto* course remained fundamentally the same in terms of design, content and delivery from the fall of 1998 to the winter of 2001. The changes or improvements made in the course during this time dealt primarily with issues of content clarity and also reflected responses to changes in updates in software applications and systems. Of the 479 undergraduate students who completed the *Nethowto* course during this expanded time frame, only 162 students completed the posttest anxiety questionnaire, 168 completed the posttest thoughts questionnaire and 170 students completed the posttest attitude questionnaire.

The increase in the response rate of 33% of the extended sample compared to 20% in the original *Nethowto* sample could be attributed to students being sent an additional reminder with their final project evaluations to complete the posttest questionnaires and to an additional reminder being posted on the course conferencing system.

The anxiety levels are represented by a Likert scale with 1 (Not At All) being the lowest level and 5 (Very Much) the highest. The attitudes toward computers are represented in a Likert scale, with 1 (Strongly Disagree) being the lowest level and 5 (Strongly Agree) the highest. The thoughts about using computer levels are represented by a Likert scale with 1 (Not At All) being the lowest level and 5 (Very Much) the highest. Questions about thoughts and attitudes towards computers were included in two of the three surveys to help isolate the question regarding anxiety toward technology and prevent any overlap in student responses.

Table 6 provides the mean scores for pretest and posttest attitudes and thoughts, which are virtually identical while there is a difference between the pre and posttest anxiety scores.

Table 6. Means scores and standard deviations associated with pre and posttest anxiety, attitudes and thoughts about computers

Test		Mean	SD	N
Anxiety	Pre-test	1.76	.64	162
	Post-test	1.28	.57	162
Attitude	Pre-test	3.13	.39	170
	Post-test	3.14	.35	170
Thoughts	Pre-test	2.83	.39	168
	Post-test	2.87	.37	168

Table 7 provides ANOVA results. This analysis provides evidence of a statistically significant reduction in posttest anxiety scores ($p \leq .01$) in the expanded

sample. A repeated dependent t-test would have yielded the same result as a Repeated Measures ANOVA of the means and could have been used, but an ANOVA was used because it reduces the chance of multiple test error and reduces Type 1 error. There was no significant difference in the pre and posttest scores for attitude and thoughts toward technology. While the hypothesis that students in the inquisitivist based *Nethowto* course had a reduction in fear of technology is supported in the expanded sample due to the anxiety findings (undergraduate *Nethowto* students from the fall of 1998 to the winter session of 2001), this result has to be viewed in the context of there being no significant difference in the level of fear of technology in the original sample group.

Table 7. Sources of variance in pre and post test anxiety, attitudes and thoughts about computers

Variance Source	df	MS	F	p
Pre vs. Posttest Anxiety	1	2.07	14.01	.004*
Within cells error	161	.15		
Pre vs. Post test Attitudes	1	3.43	.11	NS
Within cells error	169	.25		
Pre vs. Post test Thoughts	1	1.01	.13	NS
Within cells error	167	.22		

*$p < .05$

Personality Type Suitability

To determine if inquisitivism is appropriate for all personality types, *Nethowto* students from the summer of 1998 to the winter session of 2001 were asked at the beginning of the course to complete the Keirsey Temperament Sorter (KTS) II. Temperament type was used as a factor in an ANOVA.

Table 8 includes the *Nethowto* student final project mean scores and the standard deviations for each personality type. Notice the similarity of mean values in the personality types. While there were significantly more Artisan (147) and Rational

(133) than Idealist (53) and Guardian (40) personality types, there is very little difference in the final project mean scores. An analysis of variance showed that no significant difference exists among the mean scores of the final project for the students with the four different personality types: ($F(3/369) = .303$, $p = .823$) and have therefore failed to reject the null hypothesis.

Table 8. Mean scores and standard deviations of personality types of *Nethowto* students

Personality Type	n	Mean	SD
Guardian	40	35.03	3.548
Artisan	147	34.43	4.398
Idealist	53	34.15	5.379
Rational	133	34.52	4.403
Total	373	34.49	4.459

These results indicate that since students from all four personality types scored equally on the final project the inquisitivist approach would be suitable for all four personality types tested. Or, more specifically, the inquisitivist based *Nethowto* course may enable students from the four personality types to score well in their assignments.

Challenges Related to the Inquisitivist Approach

No specific data were collected about this question, rather a synthesis of qualitative comments from students and the instructor and instructor observations were compiled. An in-depth analysis of the challenges of: getting students to actually go to the course website before asking questions or getting some students to ask questions, providing the right balance of instruction for a diverse range of students, and encouraging collaboration on the course WebBoard™ while limiting or dealing with competition and posting excesses (Appendices H and I) will be provided in Chapter 7.

CHAPTER SEVEN: DISCUSSION

Not only did this study show that the online students did better on their final projects than the F2F students, it also showed that there are was no significant difference in the levels of learning experience satisfaction between the online students and the students in the traditional F2F classroom. While evidence from the original *Nethowto* sample compared to the comparison group did not show any significant reduction in anxiety (fear) an expanded sample (from fall of 1998-winter of 2001) of undergraduates in the Nethowto course showed a reduction in anxiety (fear) towards computers and technology. Finally, it has been shown that achievement with the inquisitivist did not differ (in terms of final project performance) for the four personality types measured by the Keirsey Temperament Sorter.

Nethowto Students Exceeded Expectations in Learning Course Material.

The significantly higher final project scores from the online (*Nethowto*) students can be corroborated by a recent meta-analysis of distance learning research (Allen, et al., 2001; Allen, Bourhis, Burrell,& Mabry, 2002). The mean scores of the *Nethowto* students' final projects were 17% higher than the comparison group. This difference is especially surprising given the fact that, on average, the comparison group students had taken more computer courses and had less work and personal responsibilities.

The difference in scores between the *Nethowto* and comparison groups could have been attributed to a variety of factors. It may be the case that the *Nethowto* students motivation to do well in the course was higher because the *Nethowto* group chose the course as an elective while the comparison group was required to take their course. Another factor affecting motivation could be related to the fact the *Nethowto* group was more mature, had greater martial and family responsibility and could have been more accustomed to project work and independent learning.

Perhaps one of the most significant factors is time on task, which is a factor often not effectively controlled in quasi-experimental designs of educational research

(Joy & Garcia, 2000). By its very design, inquisitivist instruction requires students to use the system while they learn the system. This translates into the *Nethowto* students spending virtually all their time on the actual task of learning to communicate, access, and provide information on the Internet.

In contrast, the comparison group students had traditional lectures, which meant that even though they could have been listening to Internet related topics, or even discussing these topics, they were not actually working on tasks relevant to learning how to use the Internet. Similarly, the time spent in labs for the comparison group also may not have been considered to be productive time on task due to the systematic design of the comparison group course. With this design, students worked through lab assignments that followed the traditional step-by-step format. While this type of recipe learning does allow students to successfully complete assignments, it may not effectively foster knowledge acquisition, as minimalism would suggest.

This situation has been evident in the delivery of *Nethowto*. Some education students, who come into the *Nethowto* course and having completed a prerequisite course that uses the traditional systematic approach often have problems transferring or applying their experiences from the previous course to almost identical assignments in *Nethowto*. The only difference in the assignments is that *Nethowto* assignments do not follow the systematic recipe and they allow the student to choose the program they should use to complete the assignment. While it must be acknowledged that this data is anecdotal the incidents where this situation has happened have occurred enough times to warrant reporting and consideration for further investigation.

Another contributing factor that may explain the higher success of *Nethowto* students is that there could be significantly more direct instructor-student interaction. Direct interactions with the *Nethowto* instructor fall either into the category of email, web-based messages replies or telephone conversations. Since *Nethowto* is conducted completely online, tracking the email and web-based conferencing interactions is very simple. On average, *Nethowto* students have 31 direct interactions with their

instructor per session (academic term). The direct responses to student questions in the web-based conferencing system have the advantage of being available and accessible for all other students to view at any time. An example of direct responses to student questions is available in Appendix I. Unfortunately, instructor involvement or interaction was not tested in the study, but one can assume that the number of direct interactions were much higher in the online course than they were in the F2F course.

Yet another possible success factor for the *Nethowto* students that was not controlled or tested was the collaborative aspect of the inquisitivist approach. *Nethowto* students were required to participate in a Help forum and 10% of their final mark was also derived from this participation. Examples of Help forum discussions on the topic of required participation can be view in Appendices H and I. Another 10% of their final mark was derived from the Issues conference participation where students were required to start and moderate an issue of their choosing and were required to participate in issues discussions with other students. In total, 20% of *Nethowto* students' final marks were from web-based conferencing participation, so motivation to participate was quite high. While this was not controlled for and not tested, it may be speculated that the help and issues participation contributed significantly to the *Nethowto* students' acquisition of knowledge and final project success. Vygotsky (1978), and similar social constructivist theorists, stress the significance of social learning and the transfer of knowledge and expertise through social interactions; therefore, it can be speculated that this dynamic applied.

A final contributing factor to the *Nethowto* students' success could be their involvement with graduate students in the conferencing component of the course. Since the undergraduate and graduate *Nethowto* students participated in the same conferencing forum it may be the case that the graduate students attitude toward learning could have positively affected the undergraduates students.

While I would like to think that the inquisitivist approach was primarily responsible for the *Nethowto* student success, the aforementioned speculated factors

need to be tested in further research. Regardless of the reason for their actual success, *Nethowto* students appeared to have learned the course material and also appeared to be satisfied with their learning experience.

Nethowto and F2F Students Learning Experience Satisfaction

Evidence showed that there was no significant difference in the learning experience satisfaction between *Nethowto* students and the comparison group students. The differences between the *Nethowto* and comparison group satisfaction mean scores were slight, with the mean scores for the *Nethowto* group being slightly but not statistically significantly higher. In addition to students being satisfied, it can be shown that *Nethowto* students believed that they learned a lot and that their knowledge grew significantly. The evidence from the supplemental questionnaire given to the *Nethowto* students suggests that the students not only learned a lot, they agreed that the course helped them to grow from one level of knowledge and familiarity with computers and the Internet to a significantly higher level.

The only question that did not have a clearly positive response was the question of whether or not students would have preferred to take the course via a traditional lecture/laboratory mode. Even though on average the student responses were close to neutral or leaned toward disagreeing that they would have preferred to take the course via a traditional lecture/lab format, there was still a significant proportion of students that agreed and would have preferred to take the course via a traditional lecture/lab format. Even though on average the student response was slightly more positive than neutral toward the online format the wide spread, indicated by a large standard deviation (1.17), suggests that there significant numbers of students that would have preferred the traditional format. The slightly positive leaning toward the online format may be accounted for by the fact that approximately half the students in the course were true-distance students and had no choice in the format of their instruction or were accustomed to the online format. In contrast, approximately half the students in the course were non-distance students accustomed to attending traditional classes on campus. The students who indicated a preference

toward the traditional lecture/lab format may have done so because they were accustomed to this form of instruction or they simply found traditional instruction easier and were more comfortable following a recipe. It may also just be the case that students simply do not like active learning. These factors could be taken into account in further research.

Nethowto Students and Reduction in Fear

The evidence from the original *Nethowto* sample group being compared to the comparison group revealed there was no significant difference in the mean scores for pre and posttest anxiety. The low response rate (20%) resulted in a sample of only 11. The problem of statistical significance in small sample sizes and lack of statistically significant difference in means confirmed by a paired samples t-test prompted an adaptation of the experimental design to include the scores from undergraduate students beyond the original study. In contrast, the scores from the expanded sample of undergraduate *Nethowto* students showed that the inquisitivist approach was effective in reducing anxiety (fear) towards computers. It must be acknowledged that these positive results need to be qualified by the fact that there was no comparison group to compare them to and that even though the *Nethowto* course remained fundamentally the same in design, content, and delivery there were small changes to the course that could have affected the positive outcome. Unfortunately, final conclusions or generalizations cannot be made from these results and further research will be required to confirm that the inquisitivist approach has a positive effect in the reduction of fear toward technology.

Inquisitivism and Personality Types

The lack of statistically significant difference in the means of the final project scores from students with the four different personality types may indicate that the inquisitivist approach may not be better suited for any of the four personality types tested or that it may be suitable for roughly equal proportions of each. The lack of difference in scores could also indicate that the measure of the KTS was not sensitive enough to detect differences. Another consideration is that using final project scores

may not be the most effective way to determine the approach suitability to a specific personality type. Additional research is required before any generalizations can be made regarding the suitability of inquisitivist approach for different personality types.

Overcoming Inquisitivist Approach Challenges

Even though the data reveals that students in the *Nethowto* course performed very well in their final projects, were as satisfied with their instruction as the comparison group, and it appears the inquisitivism is suitable for the four measured personality types, there are still challenges to the approach. For example, one of the most interesting paradoxical situations is that too many questions are asked, and at the same time, not enough questions are asked. Another paradox involves encouraging student participation in the course conferencing system while at the same time limiting excessive participation. One of the most perplexing challenges is addressing the unique instructional needs of the vast diversity of students who take the course. Rather than view these issues as obstacles, these issues should be, and are, viewed as opportunities to make improvements in the design and delivery of *Nethowto.*

Too Many Questions and not Enough Questions

WBI, or most other forms of distance instruction, require students to be responsible for reading the course material. If some students do not take the time to read the course syllabus, or even the most basic instructions, many of the initial questions that they have would have been answered if they had simply spent the time to read introductory course material. It does not matter how well laid out a course is or how succinct and effective course materials are, if students do not actually look at the online course material. A paradoxical but equally challenging scenario arises when some students spend enormous amounts of time attempting to read every available course resource but do not ask any questions when they run into difficulty with the material or with the course itself. Encouraging students who attempt to read everything written on a topic but hesitate to ask questions is as difficult as encouraging those don't bother to read anything at all. This is a challenge for the F2F instructor but an even greater challenge to WBI and to the inquisitivist approach.

Getting Students to Read or go to the Website

In the first few years that *Nethowto* was delivered, WBI, in general, was still very new. At that time very few, if any, of the students had any experience with web-based instruction, so one of the most common questions was, "what do I do to get started on the course?" In response to this persistent question, a Getting Started link and subsequent pages were created to give the students everything (navigation instructions, details for joining the WebBoard™ and finally tips/recommendations for getting started on the coursework) they would need to get off to a good start. The Getting Started content was continually revised until it was as brief and succinct as possible, yet still provided all the necessary information. In addition, the link on the main page (Figure 6) was strategically placed in the optical center of the page (1/3 of the page down and slightly off the left margin), which is where the eyes naturally fall when first viewing a Web page (Magnik, 1997; Nielsen, 1999). A second link shortened to just the word "Start" was added just off from the center of the page and 1/3 of the way down, but students still kept either emailing, phoning or posting messages on the WebBoard™ asking how to get started.

Despite all the attempts to improve and clarify/simplify the Getting Started instructions, the most common question in the first week of the course was "How do I get started?" In response to these continued questions, data was collected on how many students were asking these types of questions and why. From the fall of 1999 to the winter of 2000 a record of each getting started question (via, the phone, email or the WebBoard™) was made and the reason for the question was recorded. The data revealed that approximately half of the students in the class were asking how to get started on the course. When asked why they were having difficulty getting started, a surprising number of students admitted to not having followed or even read the getting started instructions. Of the approximately 50% of students who asked how to get started, over 50% had not even been to the course Website or read any instructions (see Table 9). More specifically, a quarter of students in the Fall and Winter session of 1999-2000 did not read the instructions or even visit the course Website before asking how to get started.

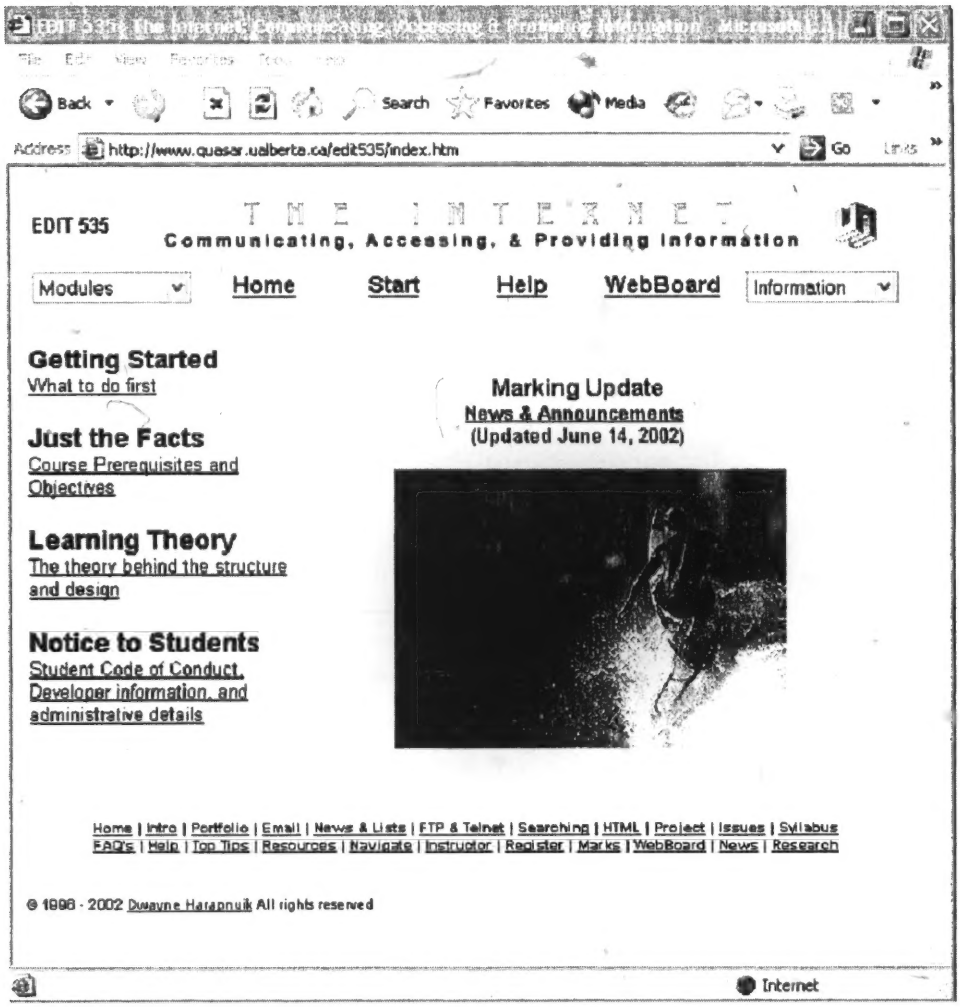

Figure 6. Strategic positioning of getting started link

Telling these students to simply open a browser and type in the URL, http://www.quasar.ualberta.ca/nethowto/ resolved this problem. Many students admitted to asking how to get started instead of reading the instructions and some said that they could not be bothered with reading instructions. A significant number of students commented that they felt that the Getting Started instructions were intended only for beginners and they felt that they did not need to read them.

Table 9. Getting started questions

Number of Students and Questions	Fall 1999	Winter 2000	Spring 2000	Summer 2000
Enrolled students	54	94	61	75
Number and % of how to start questions	29 (53%)	43 (45%)	9 (14%)	10 (13%)
Number and % who did not read instructions	16 (29%)	23 (23%)	7 (12%)	7 (9%)

To deal with this situation of students intentionally avoiding the getting started instructions, the actual instructions were copied to the course News and Announcements page (which is also prominently displayed on the main course Web site) and placed under the headline Getting Started Tips. While many students either chose to avoid the Getting Started instruction, or chose to contact the instructor directly, it was apparent that most students did take the time to review the course News and Announcements. The incidence of "how to get started questions" dropped dramatically to approximately 10-15% of the class. To this day, there are still 7-12 students per session who will not read any instructions but choose to contact the instructor directly via email, the phone, or on the WebBoard™ with questions about getting started.

Getting Students who Should ask Questions to ask Questions.

While it is still somewhat of a challenge to deal with students who ask how to get started on the course when they have not read or even looked at the course Web site, it is equally challenging to get a number of students who should be asking questions to ask questions. Every term there are 2-3 students who contact me either half way through the term or close to the end of term in a state of panic or frustration. Most often these are mature students who have been in the workforce for many years and have returned to school to either complete a masters degree or undertake a second degree. These students have read every page of the course and more often than not have over complicated every assignment and nearly every aspect of the course.

Instead of contacting the instructor for clarification or with questions, they attempt to work through every problem themselves until they get to point of total frustration. It is not uncommon for these students to be panic stricken when they finally contact the instructor. Once they have learned that the email assignment really is as simple as composing an attachment and submitting in a specific fashion, or the FTP assignment is as simple a moving a file from local side to the remote side of their FTP client, they realize they have made the assignments much more difficult than they really are and that they can very quickly catch up and complete the course without further difficulty.

When asked why they did not contact the instructor earlier or communicate with the other students in the class, the most common reply is they felt that they could work through it on their own and did not want to look foolish in front of the instructor or other students. When asked why they assumed that there had to be much more to the assignments, they most commonly responded that they were not accustomed to brief, concise and straightforward instructions and were looking for the hidden complexities in the assignment to prevent any potential loss of marks. Virtually all of these students were afraid of submitting anything but a "perfect" assignment.

To reach out to these "perfectionists," messages are now regularly posted on the WebBoard™ conferencing system encouraging (even imploring) students to contact the instructor with a question or to post a message in the Help forums of the WebBoard™ if they find they are spending too much time on one assignment or are stuck on any aspect of an assignment. Despite these attempts to lessen this problem, there are still a few students who just do not ask any questions until it is almost too late. While so much can be controlled by the course design and the instructor student interaction, there is very little an instructor can do if a student is not willing or ready to ask for help.

Right balance of Instruction for a Diversity of Students

Even though the data indicated that was no difference in success for students from the personality types tested or, at minimum, the four personality types tested could do well in the course final project, one of the most significant challenges to the

inquisitivist approach, and more specifically the delivery of *Nethowto*, is providing the right balance of instruction for a very wide range of students. There is one course Website, but a wide range of student abilities. Since the course was first offered online, just over 1700 students have completed the course. The oldest student was an 84 year young retired physician who took the course to get a "leg up on the Internet" and the youngest was a 17 year old undergraduate. Even though the Faculty of Education at the University of Alberta offers the course, more than half of the students in the course come from other faculties. A recent registration trend reveals that the largest group of students outside of the faculty of Education comes from the faculty of Business. In addition to a large number of Business students, the course regularly has students from the faculties of Science, Arts, Fine Arts, Nursing, and Medicine.

Depending on the term, anywhere from 25% to as high as 50% of the students are true distance students who work on the course over the Internet from locations all over the world. This diversity of students makes for very interesting and positive discussions in the course web-based conferencing system, but the diversity does present challenges.

One Website – Many Student Levels of Ability

This wide diversity of students results in an even wider range of students' ability. Since the course is delivered completely online and deals with all aspects of Internet communication technology, students must use all forms of Internet tools (including email, Telnet, FTP, List servers such as Majordomo, Usenet, Instant Messaging, HTML editors, web-based conferencing, Search engines, Indexes, MUDS, MUSHES, MOO, and Compression utilities such as Zip and Stuffit). Students are often required to download and install a number of programs on their system to complete the assignments. Since the course is based on the inquisitivist approach, many students who have only been exposed to systematic forms of instruction are often ill equipped to learn actively and independently.

This lack of ability to learn actively and independently often manifests itself with education students who have completed the *Nethowto* course prerequisite courses. Since the prerequisite courses are based on systematic forms of instruction, it is not uncommon for students who have completed the recipe-based assignments to have difficulty with similar or more complex assignments of *Nethowto* without the recipe that they used in the prerequisite course. Perhaps the following example may illuminate the problems of these students that have grown dependent on the step-by-step instruction of the systematic approach. In a pre-requisite course (EDIT 202) students are required to use similar Internet clients (I will refer to them as "tools") that are used in *Nethowto*. For example, students in EDIT 202 are given explicit step-by-step instructions on conducting a file transfer with either WS_FTP or Fetch file transfer protocol programs. These instructions are lengthy, complete and even include screen captures. Nothing is missed and students simply have to follow the steps that have been meticulously laid out for success.

A number of the students who had success in this prerequisite course assignment have great difficult in doing virtually the same task in *Nethowto*. In *Nethowto* the students are given all the necessary information required to complete the assignment (the FTP address, username password information and directory information) but are not given the same step-by-step instructions (recipe) to follow. Instead students are pointed to a number of resources that explain how to effectively use FTP; some of the resources even include the step-by-step instructions. In addition, students can use any FTP client they choose instead of being required to use a designated client. Ironically, this in and of itself presents a challenge and often stops these students' progress because they either do not know what client to use or do not wish to make the decision on what client to use (it is made explicitly clear that they can use any client they wish). It appears that some students have become dependent upon the recipe approach and have difficulty transferring what they have done in a step-by-step setting to virtually the same situation that does not provide the step-by-step instructions. One can ask if students are really learning how to conduct a file transfer in the systematic setting or simply following a recipe.

Diversity of Students

When you factor in the ability levels of the students from different faculties, the distance students and the issues of age, race, gender and language, it clearly has been (and continues to be) a challenge to develop a course Website that suits the needs of such a diverse group of students. There is one course, but there are many paths through the course.

By design, the modules can be completed in any order (with exception of the portfolio which is a compilation of all module assignments), which allows students to choose their own route through the course. Students who have experience with technology and are confident in their abilities very quickly learn that they can skip over certain module components (all modules follow the same format and have similar components) and simply focus on the required work. The following excerpts were taken from course evaluations conducted from the fall of 1998 through the spring of 2001. The responses are to the question: What did you like best about the course? Students were allowed to submit their online responses anonymously to encourage candid feedback:

> I like the flexibility - To complete the modules in any order and submit assignments at any time (Anonymous, 1998).
>
> I liked the self pacing and self direction in terms of projects. The clarity of expectations. (Anonymous, 1999).
>
> The Inquisitive Learning Theory is a more productive method of teaching students because it demands pro-activity, thinking, and self-discipline/self starting. (Anonymous, 2000).

Students with little or no technology experience and who lack confidence can follow the recommended instructional route, use all module components and view all related support material to learn what they need to complete the assignment. Comments taken from the course evaluation from the fall of 1998 through the winter of 2001 confirm that students with little or no previous technology experience gained confidence and achieved success in the course:

> I found this course fascinating. I didn't have a lot of experience with computers other than using them to do word processing, e-mail and some Internet Surfing. I did have one introductory computer course through Library and Information Sciences. I found that by following the course as it was laid out I was able to complete all the assignments (Anonymous, 1998).
>
> It has helped decrease my anxiety and increase my confidence with computers (Anonymous, 1998).

Providing many routes through the same course material means that there may appear to be too much information for the technologically literate students and, at times, too little hand holding and encouragement for students with little or no technology experience. Each course module has a Getting Started and Top Tips component (linked pages) that includes support and resource material useful for those with little or no experience and for those with more experience and confidence.

Unfortunately, this variety of information presents a challenge to the small group of perfectionists (discussed earlier) that enroll in the course each term. This group is extremely worried about "missing something" and will attempt to read or use all support material and will often become overwhelmed by the wide range of instructional support material and links. To compensate for this range of students needs and to assist all these students, messages are regularly posted in the News and Announcement section and on the course WebBoard™ encouraging students to only use the resources and support material that they need to complete the assignments. Students are warned that they need not follow every support link and read all support material, but should use only the support material and links that they need to complete the assignments. This message is repeated numerous times throughout the course. In addition, a discussion about discerning what information is useful/necessary is also started in the WebBoard™ and students are encouraged to participate. Despite all these attempts to have students learn to discern what information they need and what they do not, there are a small number of students who are not able to do so. Fortunately, these students eventually contact the instructor

directly and are either verbally encouraged or encouraged via email or WebBoard™ message and set on the correct path.

Another group of students that present a unique challenge to this approach are foreign students. In particular, students from Asian countries are often not only accustomed to a very systematic approach to instruction they are also accustomed to being told what to do in every aspect of their education. Their native cultures often do not encourage independence (Coon & Kemmelmeier, 2001; Tang, 2002). Because the course design gives students enormous independence and freedom: the option to use any program they wish, to choose any path through the course and to choose the topic for the final project, many Asian students are virtually paralyzed with fear when faced with having to make all these decisions. They are not afraid of the technology—they are afraid having to make key decisions. To compensate for this flexibility, many of these students will work together and do exactly what their peers are doing and will use whatever programs their peers use. When it comes to the selection of the final project topic, many foreign students will contact the instructor asking, or even at times pleading, for the instructor to assign a topic. It is not uncommon for a series of 3-6 emails to be exchanged before a topic is finally decided upon.

Encouraging Collaboration vs. Competition

WebBoard™ Help and Issues

Nethowto students are required to participate using the course WebBoard™. Participation in the Help forums requires students to seek out help from their peers and to help their peers resolve problems that may arise in the coursework. The evaluation of the help forums is based on the quantity and the quality of participation and is clearly defined in the course (Figure 7). Students are also required to start an issues discussion on any topic and to solicit participation from their peers. Students are required to start one discussion and participate in a minimum of two other forums to earn the minimum participation mark of 3/10. The remaining seven points are determined by the quantity and quality of their additional participation. The Help and Issues forums participation make 20% of the course final weighted total. The forum

requirements and marking criteria are very clearly outlined in the Issues and Help module.

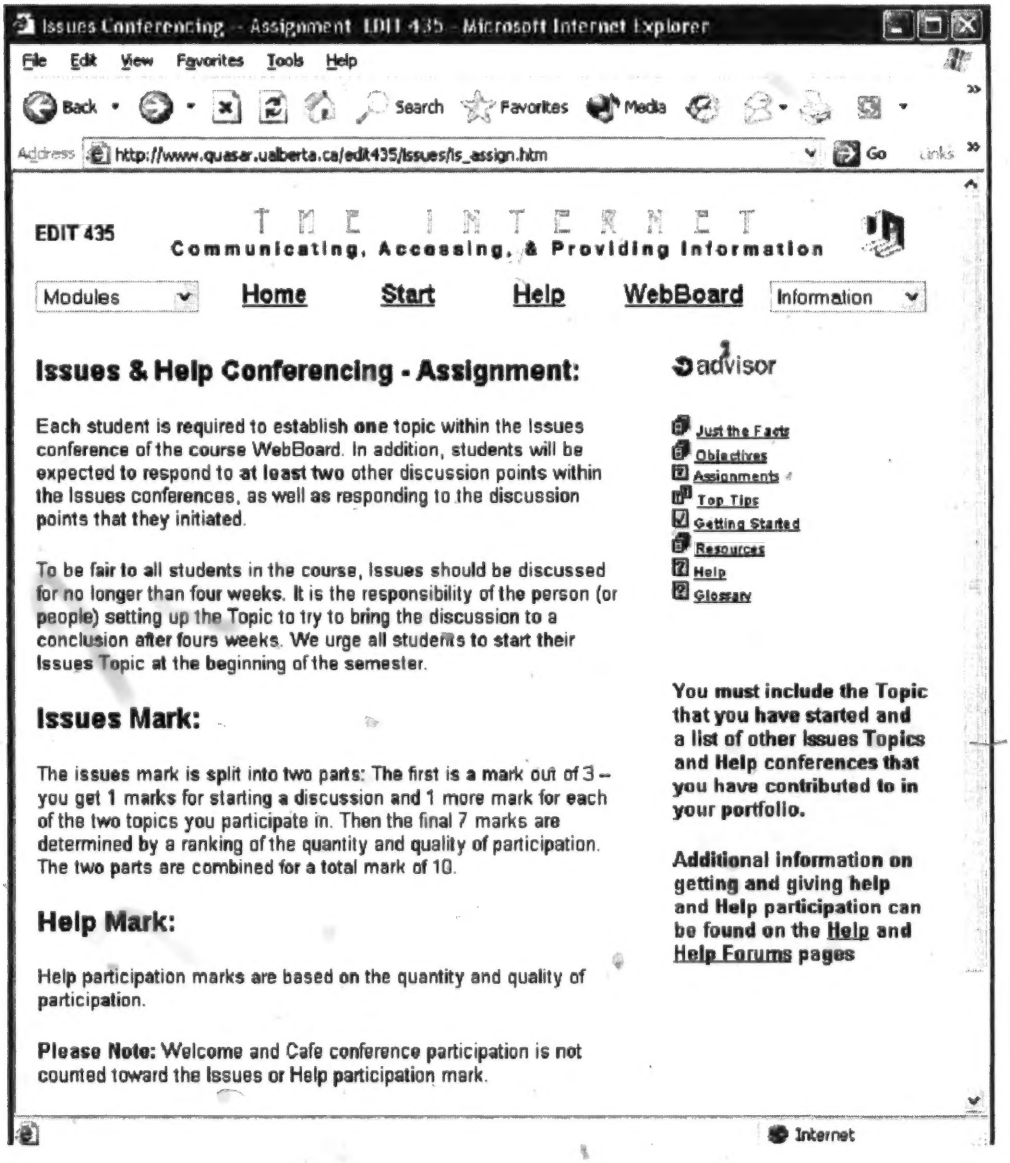

Figure 7. Issues and help participation

Despite this clarity, one of the most common questions in the second week of the course is "how many messages do I need to post in the Help and Issues forums to

satisfy the requirements?" Students are informed that they will set the standard for the volume of participation and the level of participation in much the same way these standards are set in a F2F setting. This response, more often than not, starts an interesting discussion regarding the WebBoard™ and the need for evaluating conference participation (See Appendix H). Many students like the idea of being responsible for setting the volume or participation and the quality levels, but some would prefer to have a specific number that they would be required to attain.

WebBoard™ Conferencing Excesses

While telling students that they are setting their own standard for the volume of participation is an approach that works most of the time, there are occasions when some students post excessive messages and, in essence, raise the level of participation to a point that is not realistic for the entire class. This happened twice since the course has been offered and for some reason it has happened only during the winter sessions. In both of these instances there were two or three students who posted nearly ten times more messages than most other students. In both of these sessions, the students were reminded that the class as a whole should set the level of participation and that it was unnecessary for a small number of students to take it upon themselves to raise the standard to an unrealistic height.

The students' excesses were the topic of numerous issues discussions and it did stimulate some very lively and animated interactions (See Appendix I). These discussions revealed that many students were bothered by the excessive posting and viewed competitiveness (See Appendix H) as a detriment to the forum. The discussion also revealed that the class (with guidance from the instructor) was able to police itself and maintain a high level of decorum.

This type of a situation has only arisen twice in the 30 sessions that the course has run, and in each instance its negative aspects were offset by the positive discussion that it spurred. Specifying a fixed number of posts will not solve this problem because students will simply post messages until they reach this number and stop. This is not the way that an online community should work, nor should it be the

way that the replacement for F2F interaction works. The challenge of encouraging collaboration is also a challenge in F2F settings and is really not one that we can resolve, perhaps until we move away from a competitive mark based evaluation system.

Summary of Challenges

Challenges experienced during the delivery of *Nethowto* are viewed as opportunities to improve the course. Many of these challenges stem from difficulties students experience due their expectations and reliance on the traditional form of systematic instruction. Getting students to actually go to the site and read even the most basic instructions are as big a challenge as is designing one course for an extreme diversity of students. Finding the right balance in this diverse group can only be overcome if both the students and instructor in this instructional environment communicate regularly and effectively. In response to these challenges/opportunities, the course has evolved to meet student needs and will continue to evolve as those needs change and as the Internet changes.

Further Research and Conclusions

Because of the warning of Van Wagenen (1991) to omit from a discussion "topics for further research, unless you have a genuine insight and have given the matter careful thought" (p. 115), I will attempt to provide an insightful discussion of research that needs to be conducted to further validate the inquisitivist approach.

Since the inquisitivist approach is new and an adaptation of minimalism, it could be argued that this entire study needs to be run again (perhaps numerous times) but with much greater controls. The qualified results on the reduction in fear need to be substantiated with additional tests. Future investigations into the effectiveness of the inquisitivist approach would have to:

- Employ true random sampling and statistically meaningful samples.
- Control for prior knowledge, ability, learning style, teacher effects, time-on-task, instructional method and media familiarity.

- Use a comparison group for all aspects (i.e. fear reduction and personality).
- Use instruments with sufficient number of items to increase reliability.
- Establish reliability scores on final projects.
- Consider using continuous data rather than discontinuous (i.e. use personality scores rather than 4-point scales.

However, even if these independent variables could be effectively controlled, their application would be artificial, calling to question the whole media comparison (Joy & Garcia, 2000).

Future research could investigate the role of time-on-task, the impact of instructor-student and student-student interactions and the effect of graduate and undergraduate student interactions. The affect of the instructor's personality and teaching style on the implementation and delivery of the Nethowto model could also be investigated. An even more perplexing area of future research would deal with the question of why students who demonstrated a high level of success and satisfaction with the inquisitivist approach would still have preferred a traditional form of instruction. Carroll found a similar phenomenon in his research that revealed that despite the success with minimalist documentation, people still claimed to prefer the traditional documentation (1990). Goodwin, Miller and Cheetham (1991), and Lake (2001) also found that despite demonstrable improvement in achievement levels over lecture based instruction, most students perceived active learning instruction to be ineffective and would have preferred lecture-based instruction.

Are these claimed preferences actual preferences or simply people's natural tendency or desire to preserve the status quo? Or does the inquisitivist approach and similar active learning approaches expect or require too much of the learner? Are classes easier in the traditional systematic design format? Are inquisitivism, minimalism, active learning and many other student centered constructivist approaches really such hard work, or are students simply more comfortable with

memorization than with learning how to think? These questions are just the beginning of many more questions that would need to be effectively explored to determine why people appear to still prefer systematic design instruction despite demonstrable success with other instructional approaches like inquisitivism.

Inquisitivism, minimalism, and active learning can be hard work especially for those who are not accustomed to this form of instruction. Similarly, memorization is much easier than learning how to think critically and analytically if one is accustomed to memorization. We clearly need to change student's experience and perceptions towards these forms of instruction. Lake (2001) suggested that we expand the discussion for the rational of active learning methods, incrementally introduce active learning and, finally, change to an all active learning curriculum. I agree with Lake, but would add that we need to move toward a much broader adoption of inquisitivist, minimalist and other forms of constructivist approaches at the primary and secondary levels so that when students reach the post secondary level they are accustomed to the challenges and benefits of these active and engaging forms of instruction.

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APPENDIX A

FINAL PROJECT – MARKING GUIDE

___(5) Audience & Purpose

- Who will use the site?
- Why will people want to use this site?
- What is the main purpose of the site?
- Intentions clearly stated
- Purpose consistent throughout site
- Type of site clearly defined
- User bandwidth considered

___(5) Relevance/Currency

- Trendy cliches avoided
- Avoided "Under Construction" signs
- What problem is the site attempting to solve?
- Current links
- Current information

___(10) Appearance:

- Graphics
- Large images limited for visual appeal
- Warning size for large images
- Technology tricks used to reduce image size
- Included alternative text for each image
- Images NOT referenced from other sites
- Graphical bullets used for purpose not looks
- Graphical dividers used sparingly
- Background images use appropriately
- Avoided platform specific image problems
- Image maps have clearly defined clickable regions

- Provide alternative text for image maps

___**(10) Navigation**

- Graphic navigation buttons plus text alternatives
- Table of contents
- Title header on each page
- Title header reflects textual page title
- Title header summarizes content of page
- Navigation bar on either top or bottom of page
- Easy site to navigate
- Context created for links
- Meaningful words chosen for links
- Appropriate length for links
- Links support sentence structure
- Links match the resulting page

___**(5) Organization**

- Short pages for presentation
- Scrolling pages allowed for readable text
- Table of contents on longer pages
- Links work
- HTML syntax correct
- Pages up to date
- Spell Checked
- Pages dated
- Written for all browsers

___**(5) Level of Difficulty:**

- Amount of work
- Quality of work

___**(10) Content:**

- Reflects undergraduate or graduate quality levels

- Useful content on each page
- Content valuable
- Excessive text pared down
- Context links provided
- Content well researched
- Links to similar sites
- Easy access to similar content
- NOT insulting or inflammatory
- Copyrighted material respected
- Well Written!

____ **Total**

50

APPENDIX B

SPECIALIZED STUDENT RATINGS OF INSTRUCTION

University of Alberta

Specialized Student Ratings of Instruction for ED 435 & EDIT 535

To be used with non-traditional university courses

The University of Alberta would appreciate your careful completion of this questionnaire. The results are one important factor in decisions affecting the career of your instructor. The results of the first seven questions appearing below will be available through the Students Union. Questions about this questionnaire should be addressed to your department Chair or Dean.

The University of Alberta Universal Student Ratings of Instruction evaluation forms are required to be completed for every course offered at the University of Alberta. Due to the different types of courses offered, and different teaching styles presented by instructors, this form is not always appropriate or accurate to use as a method of evaluating courses or instructor performance.

Universal Student Ratings of Instruction

1. My university year is:

   first second third fourth post-degree other

2. This course was a:

   requirement elective other

3. The instructor communicated clearly.

   strongly disagree disagree neutral agree strongly agree

4. The instructor was accessible (email, phone, conference).

   strongly disagree disagree neutral agree strongly agree

5. The instructor treated students with respect.

   strongly disagree disagree neutral agree strongly agree

6. Overall, this was an excellent course.

strongly disagree disagree neutral agree strongly agree

7. Overall, the instructor was excellent.

strongly disagree disagree neutral agree strongly agree

8. Additional Comments

Please submit this survey by pressing the following button.

APPENDIX C

COMPUTER THOUGHTS SURVEY

Please check the box that indicates how often you currently have each of the following thoughts when you use a computer or think about using a computer (Not at All, A Little, A Fair Amount, Much, Very Much).

1. I am going to make a mistake.

   Not at All A Little A Fair Amount Much Very Much

2. This will be fun.

   Not at All A Little A Fair Amount Much Very Much

3. Everyone else knows what they are doing.

   Not at All A Little A Fair Amount Much Very Much

4. I enjoy learning about this.

   Not at All A Little A Fair Amount Much Very Much

5. I like playing on the computer.

   Not at All A Little A Fair Amount Much Very Much

6. I feel stupid.

   Not at All A Little A Fair Amount Much Very Much

7. People will notice if I make a mistake

   Not at All A Little A Fair Amount Much Very Much

8. This will shorten my work.

   Not at All A Little A Fair Amount Much Very Much

9. I am totally confused.

   Not at All A Little A Fair Amount Much Very Much

10. I know I can do it.

    Not at All A Little A Fair Amount Much Very Much

11. I am willing to give it a try.

    Not at All A Little A Fair Amount Much Very Much

12. I hate this machine.

Not at All A Little A Fair Amount Much Very Much

13. I'm afraid I'll wreck the program.

Not at All A Little A Fair Amount Much Very Much

14. I can get help if I get stuck.

Not at All A Little A Fair Amount Much Very Much

15. What if I hit the wrong button?

Not at All A Little A Fair Amount Much Very Much

16. This is really interesting.

Not at All A Little A Fair Amount Much Very Much

17. I'm too embarrassed to ask for help.

Not at All A Little A Fair Amount Much Very Much

18. Others have learned this and so can I.

Not at All A Little A Fair Amount Much Very Much

19. I feel overwhelmed by how much I don't know.

Not at All A Little A Fair Amount Much Very Much

20. I won't be able to get the computer to do what I want.

Not at All A Little A Fair Amount Much Very Much

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APPENDIX D

COMPUTER ANXIETY RATING SCALE

The items in this questionnaire refer to things and experiences that may cause anxiety or apprehension. For each item. place a check beside the statement that describes how anxious (nervous) each one would make you at this point in your life (Not at All, A Little, A Fair Amount, Much, Very Much).

1. Thinking about taking a course in a computer language

   Not at All A Little A Fair Amount Much Very Much

2. Taking a test using a computer scoring sheet

   Not at All A Little A Fair Amount Much Very Much

3. Applying for a job that requires some computer training

   Not at All A Little A Fair Amount Much Very Much

4. Sitting in front of a home computer.

   Not at All A Little A Fair Amount Much Very Much

5. Watching a movie about an intelligent computer

   Not at All A Little A Fair Amount Much Very Much

6. Looking at a computer printout.

   Not at All A Little A Fair Amount Much Very Much

7. Getting error messages from the computer

   Not at All A Little A Fair Amount Much Very Much

8. Using the automated bank teller machine.

   Not at All A Little A Fair Amount Much Very Much

9. Visiting a computer center

   Not at All A Little A Fair Amount Much Very Much

10. Being unable to receive information because the computer is down.

    Not at All A Little A Fair Amount Much Very Much

11. Learning to write computer programs.

Not at All A Little A Fair Amount Much Very Much

12. Thinking about buying a new personal computer.

Not at All A Little A Fair Amount Much Very Much

13. Erasing or deleting material from a computer file.

Not at All A Little A Fair Amount Much Very Much

14. Taking a class about the use of computers.

Not at All A Little A Fair Amount Much Very Much

15. Re-setting a digital clock after the electricity has been off.

Not at All A Little A Fair Amount Much Very Much

16. Learning computer terminology.

Not at All A Little A Fair Amount Much Very Much

17. Reading a computer manual.

Not at All A Little A Fair Amount Much Very Much

18. Watching someone work on a personal computer

Not at All A Little A Fair Amount Much Very Much

19. Programming a microwave oven.

Not at All A Little A Fair Amount Much Very Much

20. Learning how a computer works.

Not at All A Little A Fair Amount Much Very Much

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APPENDIX E

GENERAL ATTITUDES TOWARD COMPUTERS SCALE

The following statements address general attitudes toward computers. Place check beside the statement that describes your level of agreement (Strongly Agree, Agree, Neutral. Disagree or Strongly Disagree).

1. Computers can save people a lot of work

   Strongly Agree Agree Neutral Disagree Strongly Disagree

2. It takes a good math background to learn to use a computer.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

3. You need to know how to use a computer to get a good job.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

4. Computers can help solve society's problems.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

5. Computers are taking over.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

6. Computers can increase control over your own life.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

7. Computers increase the amount of time we have for other activities.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

8. Men are better with computers than women.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

9. Computers may eventually act independently of people.

   Strongly Agree Agree Neutral Disagree Strongly Disagree

10. In the future there will still be jobs that don't require computer skills.

    Strongly Agree Agree Neutral Disagree Strongly Disagree

11. Computers are good teaching tools.

    Strongly Agree Agree Neutral Disagree Strongly Disagree

12. Use of computers can cause physical health problems.

Strongly Agree Agree Neutral Disagree Strongly Disagree

13. Computers prepare students for the future.

Strongly Agree Agree Neutral Disagree Strongly Disagree

14. Computers are taking jobs away from people.

Strongly Agree Agree Neutral Disagree Strongly Disagree

15. Some ethnic groups are better with computers than others.

Strongly Agree Agree Neutral Disagree Strongly Disagree

16. There is an overemphasis on computer education in this society.

Strongly Agree Agree Neutral Disagree Strongly Disagree

17. Computers can ruin interpersonal relationships.

Strongly Agree Agree Neutral Disagree Strongly Disagree

18. In five years everyone will need to know how to operate a computer.

Strongly Agree Agree Neutral Disagree Strongly Disagree

19. Computers create new jobs for people.

Strongly Agree Agree Neutral Disagree Strongly Disagree

20. Computers will never be smarter than people.

Strongly Agree Agree Neutral Disagree Strongly Disagree

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APPENDIX F

COURSE EVALUATION FOR EDIT 435 AND 535

The University of Alberta, Division of Technology in Education, and your instructors would appreciate your careful completion of this questionnaire. The results are one important factor in decisions affecting the development and improvement of Web-Based Instruction in the Faculty of Education at the University of Alberta. In addition to using this feedback to improve EDIT 435 & EDIT 535 and other Web-Based courses, the results of this survey will be part of ongoing research into Web-Based instruction and will be analyzed and published.

Questions about this questionnaire should be addressed to Dwayne Harapnuik.

1) This questionnaire should only be completed after the submission of the course final assignment.

2) The responses to the questionnaire will be confidential.

3) The evaluations will NOT be looked at until after the marks have been turned it to the Registrar's office.

Fill out the information in each question as requested and submit the form by clicking on the "submit survey" button.

Course Evaluation

1. I learned a lot in this course.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

2. I found the structure of the course conducive to learning.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

3. I liked having control of when assignments were to be submitted.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

4. The course stimulated me to want to learn more in this area.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

5. I had sufficient communication with the Instructor

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

6. The instructor encouraged me to communicate with him and with others.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

7. I would take other courses offered in this online, individualized instruction manner.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

8. I would have preferred to take this course via a traditional 'Lecture/Laboratory' mode.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

9. I would have preferred more structure in the course.

   ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

10. The instructor was sensitive to student difficulties with the course work.

    ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

11. The instructor made the course sufficiently challenging.

    ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

12. The instructor or assistant provided helpful feedback throughout this course.

    ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

13. The objectives of the course were clearly presented.

    ☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

14. The work requirements and grading system were made clear.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

15. Assignments were challenging and worthwhile.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

16. Directions for assignments were clear and specific.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

17. My objectives in taking the course were achieved.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

18. This course helped me grow from one level of knowledge about and familiarity with computers and the Internet to a significantly higher level.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

19. There was too much concentration on 'practice' and not enough on 'theory' in this course.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

20. I found the Learning Theory (Inquisitivism) used in this course to be effective for this type of instruction.

☐ strongly disagree ☐ disagree ☐ neutral ☐ agree ☐ strongly agree

21. At what point in your program did you take this course?

As an Unclassified Student, I do not intend to register in an undergraduate or graduate program at this time.

22. When would you recommend that other students should take this course?

As an Unclassified Student, before beginning their program

23. What Faculty or Program were/are you a student in?

Agriculture, Forestry, & Home Economics

24. What University, College or Technical Institute were/are you attending or were/are registered with while taking this course? (If were/are an unclassified student indicate University of Alberta)

25. What program were/are you taking?

26. Where did you work on the course?

Campus

27. Were/are you a distance student? (Not able to attend classes at the University of Alberta Campus)

yes no

28. Before enrolling in this course, did you own a personal computer?

yes no

29. Have you owned a Macintosh

yes no

30. Have you owned an IBM PC or Clone?

yes no

31. Have you owned any other type of computer?

yes no

32. Before enrolling in this course did you own a modem?

☐ yes ☐ no

33. While enrolled in this course did you purchase/upgrade a personal computer?

☐ yes ☐ no

34. Did you purchase or upgrade a Macintosh?

☐ yes ☐ no

35. Did you purchase or upgrade an IBC PC or Clone

☐ yes ☐ no

36. Did you purchase or upgrade another type of computer?

☐ yes ☐ no

37. Did you purchase any software as a result of taking this course?

☐ yes ☐ no

38. If you purchased software, please specify

39. What did you like the most about this course?

40. What did you like the least about this course?

41. What changes to the course would you recommend?

42. What else would you like to tell us about this course?

43. What other courses do you think might be offered through online individualized instruction methods similar to those used in this course?

Please enter your student id number. The responses to the questionnaire will be confidential. The ID number is used to confirm that you have indeed been registered in EDIT 435 or 535 and to match your responses to the particular session in which you were registered.

Please submit this survey by pressing the following button. submit survey

APPENDIX G

FORMAT ACKNOWLEDGMENT, RESEARCH CONSENT, & CONFERENCING REGISTRATION FORM

Course Format Acknowledgment:

EDPY 497 EDIT 535 is an online course with no face to face instruction. All course materials, assignments, and communication will be conducted online. I understand and accept this format of instruction.

Yes No

Research Consent & Purpose of Research

The University of Alberta has made a commitment to the delivery of educational material any time, any where. The Internet is one media that is being used to achieve this goal. To ensure that quality of education is not diminished by alternative forms of delivery, data will be collected to evaluate this format of instruction. Researchers from the University of Alberta and the National Center of Excellence in Telelearning will access this data in order to assess students achievement and evaluate the learning experience.

Benefits Envisaged

Evaluation of alternative forms of educational delivery will benefit future educators who are working on distance delivery development and students who will participate in alternative delivery formats. Lessons learned form success and failures can be passed on to other educators.

Research Methodology

All forms of electronic communication and exchange, including email, newsgroup, conferencing, and assignments will be recorded. The data collected will be evaluated to determine the strengths and weaknesses of the program and the delivery method. In addition the data collected will be used to assess the overall learning experience.

Participants Consent

Participants have the right to confidentiality of personal information and can choose to have their data exempted from researcher scrutiny. A student's mark in the course will not be affected whether or not that student has chosen to have their work included in the research study. All data will be treated in confidence and all reporting will be made in a manner that preserves the anonymity of the student.

Participants Consent

Participants have the right to confidentiality of personal information and can choose to have their data exempted from researcher scrutiny. A student's mark in the course will not be affected whether or not that student has chosen to have their work included in the research study. All data will be treated in confidence and all reporting will be made in a manner that preserves the anonymity of the student.

Yes, I wish to participate in this research

No, I do not wish to participate in this research

I _____ have read the above information and agree to these terms.

APPENDIX H

WEBBOARD™ MARKS CONFERENCE INTERACTION

The following thread was copied from the Winter 2002 EDIT 435 and 535 WebBoard™. Student's first names were changed to Student 1, 2, 3… and last names were deleted to maintain their anonymity.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (1 of 35), Read 119 times

Conf: Help-WebBoard

From: Student 1

Date: Monday, March 18, 2002 11:22 AM

Hey Dwayne, How do you know how much posting we do? Do you have to manually check or do you have a little counter thingy on your end of your computer? Whats a good mark in the Help Conference and Issues Conference? Right now I have about a 110 messages. 10 in the Issues and 100 in the Help, approximately. Obviously I have more posting to do because I'm not done my Project but are these numbers sufficient for 100% marks in these areas??
Ciao
Student 1

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (2 of 35), Read 78 times

Conf: Help-WebBoard

From: Student 2

Date: Monday, March 18, 2002 11:29 AM

Student 1, you probably want to read through all 46 messages of the "Participation marks" thread directly below this one. The topic has been gone into in some depth.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (3 of 35), Read 76 times

Conf: Help-WebBoard

From: Student 3

Date: Monday, March 18, 2002 12:14 PM

I agree with Student 2.
For myself, I don't really care how many messages I posted as long as I participated at the WebBoard and give my opinions to others which is value to them. And Student 1, you posted 110 messages already, I think is more than good enough.
Student 3

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (4 of 35), Read 74 times

Conf: Help-WebBoard

From: Student 4

Date: Monday, March 18, 2002 01:39 PM

Student 1, you can check how many postings anyone has by clicking on their name. And if you want to see the top posters, click on the More.. button at the top. If we can see the top 10, I imaging the admin version of the webboard is capable of all kinds of stats. You actually have less than 50 posts, but I wouldn't worry about trying to

compete with the top ten. (They are all crazy) Just kidding, top tenners. Way to go!

On 3/18/2002 11:22:00 AM, Student 1 wrote:
>Hey Dwayne, How do you know
>how much posting we do? Do
>you have to manually check or
>do you have a little counter
>thingy on your end of your
>computer? Whats a good mark
>in the Help Conference and
>Issues Conference? Right now
>I have about a 110 messages.
>10 in the Issues and 100 in
>the Help, approximately.
>Obviously I have more posting
>to do because I'm not done my
>Project but are these numbers
>sufficient for 100% marks in
>these areas??
>Ciao
>Student 1

Student 4

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (5 of 35), Read 74 times

Conf: Help-WebBoard

From: Student 2

Date: Monday, March 18, 2002 03:00 PM

Yer just jealous of us, Student 4. *wink*

Hey!! What's up? You're falling behind FAST!

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (6 of 35), Read 72 times

Conf: Help-WebBoard

From: Student 1

Date: Monday, March 18, 2002 11:16 PM

It's pretty hard to crack the top ten when they're postin' forty zilion times a day. And I do have 110, less than 50 logins though.

Ciao

Student 1

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (7 of 35), Read 71 times

Conf: Help-WebBoard

From: Student 4

Date: Tuesday, March 19, 2002 12:26 AM

Oh yeah. My mistake.

(I think we could crack the top 10 if we posted like that)

Student 4

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (8 of 35), Read 66 times

Conf: Help-WebBoard

From: Student 5

Date: Tuesday, March 19, 2002 12:26 PM

Hey easy there.....Student 4 and Student 1,

If I post often, there is usually substance to my messages. I try to avoid the one liners like "thanx", "I like this better", or my all time favorite, "I agree with you".

I find time in my busy schedule like many other top 10 posters. I don't think it is valid for people to complain and moan because some people are posting more compared to others. If this is important to you, make time.

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (9 of 35), Read 68 times

Conf: Help-WebBoard

From: Student 2

Date: Tuesday, March 19, 2002 12:34 PM

Student 5, I agree with you.

But seriously, folks.....

I've noticed that a lot of the "empty" posts are from people who are nowhere near the top 10. I'm sure everyone has occasionally put up something that isn't deep & meaningful, but for the most part, the top posters have also contributed a LOT of information as well as a lot of postings.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (10 of 35), Read 71 times

Conf: Help-WebBoard

From: Student 6

Date: Tuesday, March 19, 2002 03:47 PM

Student 5,

You'll have to check out my post under Participation marks. One of the netiquette rules is to respect other people's time - this courtesy should be adhered to no matter how valid your comments are and how supportive they may be.

I think that's the point of this entire discussion...some people have placed competition BEFORE courtesy.

If you think that's moaning...oh well...we all have a right to express our opinions. Unlike the real world however, in this forum, mine is just as valid as yours.

The only difference is nobody chose to put your view point down.

Think about it...

Student 6 :)

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (11 of 35), Read 70 times

Conf: Help-WebBoard

From: Student 2

Date: Tuesday, March 19, 2002 03:52 PM

Is there a serious competition? I know we've joked about it, but I don't think anyone is seriously only posting for the sake of posting, are they? Did I miss something again??

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (12 of 35), Read 69 times

Conf: Help-WebBoard

From: Student 7

Date: Tuesday, March 19, 2002 05:29 PM

I agree with you all.

ha ha, just kidding. i won't do one of those one sentence responses for you guys!

I think that being able to post a few times a day is all that is really necessary for this course and for people to post 20 times a day is a little bit much, but hey, if that's what

they want to do with their time that's fine with me. I just post when I find some topic I find interesting enough to post to and that I actually have something to say about.

Student 7

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (13 of 35), Read 61 times

Conf: Help-WebBoard

From: Student 8

Date: Tuesday, March 19, 2002 05:34 PM

So if I am not in the top 10 and I obviously am not how do I check my stats to see how many quality messages I have posted? Have looked around and have not found an obvious way of doing this.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (14 of 35), Read 65 times

Conf: Help-WebBoard

From: Student 2

Date: Tuesday, March 19, 2002 05:36 PM

Student 8, if you click on the "Page" button, that will bring up a list of all logged in users (of which you will be one). If you then click on your name on that screen, it will give you a few interesting bits of info, including how many times you've logged in, and how many times you've posted. You can do this for anyone this way.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move

Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (15 of 35), Read 60 times

Conf: Help-WebBoard

From: Student 9

Date: Thursday, March 21, 2002 10:04 AM

I dont think that being in the top 10 of posting will get you a 100% of participation marks. Just look at Student 5, he has posted lots and he actually spends time to read what others have wrote and then gives a very lengthy and insightful response. I think quality is always more important than quantity. I try to post about 4-5 times a day and that only takes about 20-30 minutes out of my day. I guess it is not really that tough to be one of the top posters if you really want to spend the time and effort.

Student 9

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (16 of 35), Read 57 times

Conf: Help-WebBoard

From: Student 1

Date: Thursday, March 21, 2002 01:42 PM

This class isn't scaled anyway (I think)?!?!?! So it doesn't matter...a percentage just translates to a grade, no competition necessary. And I've gotta say that the people that are in the top ten seem to post a lot in these whiny categories just boosting their posts maybe...hmm?

Ciao

Student 1

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (17 of 35), Read 59 times

Conf: Help-WebBoard

From: Student 2

Date: Thursday, March 21, 2002 03:44 PM

....and the people who post a lot here to complain about others posting a lot here are... ummm.... what, Student 1?

giggle

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (35 of 35), Read 24 times

Conf: Help-WebBoard

From: Student 10

Date: Tuesday, April 02, 2002 02:27 PM

We do have lives and this course takes to much time then regular class time that is needed i think this instructor dude should give us some time

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks?? (18 of 35), Read 52 times

Conf: Help-WebBoard

From: Student 8

Date: Thursday, March 21, 2002 07:10 PM

Thanks Student 2, I am not sure now that I have that information that I really wanted it. There are people on this board with 8 times my postings. Ah well ...

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (19 of 35), Read 51 times

Conf: Help-WebBoard

From: Student 8

Date: Friday, March 22, 2002 12:24 PM

I misunderstood how we will be evaluated for the *issues participation* . For some reason, I thought the evaluation of the participation mark would conclude 4 weeks after my initial posting, so have only been participating in the Help conference. I now realize I should have continued posting in the issues conference as well. **Is it too late to catch up?** I am feeling very discouraged... there is NO WAY for me to catch up with the top 10 posters.

I recognize that the level of participation presents the amount of effort put into the course and therefore is a valid form of assessment but... does it really evaluate knowledge or skill? If I post 100 times it does not mean I know more about CMC, or how use a web board than the person who posted 10 times. Sorry for the rant... I am more upset with myself than anything for not paying close attention to the evaluation criteria. This is a huge chunk of my mark down the tubes. GRRRR....

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (20 of 35), Read 52 times

Conf: Help-WebBoard

From: Student 5

Date: Friday, March 22, 2002 12:29 PM

Just a question: didn't you take this course last term? According to your profile you logged in at the beginning of September, which to me seems like you have an extension in the course. At least I perceive it to be that way.

In any case, you almost have 3 weeks to participate so I would not worry to much about your standings. Good luck!

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (24 of 35), Read 50 times

Conf: Help-WebBoard

From: Student 8

Date: Friday, March 22, 2002 04:56 PM

Student 5,

Actually, I don't have an extension. I took another online course last term. I guess the number of log ins are not only for EDIT 535 but other courses as well.

Tracy

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (21 of 35), Read 53 times

Conf: Help-WebBoard

From: Student 2

Date: Friday, March 22, 2002 12:32 PM

You still have until mid-April (roughly) to post. I don't think getting into the top 10 is required for full marks, so don't stress out over that. Just post in whichever issues you feel you can contribute to, and you'll be surprised at how quickly your numbers rise.

I'm sure you'll find enough issues to respond to; we've got quite an interesting selection here!

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (22 of 35), Read 56 times

Conf: Help-WebBoard

From: Student 4

Date: Friday, March 22, 2002 01:05 PM

You have 182 messages! Isn't that fairly good? Or maybe I'm way behind too.

Student 4

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (23 of 35), Read 53 times

Conf: Help-WebBoard

From: Student 11

Date: Friday, March 22, 2002 03:41 PM

Student 12,

I really don't think that you need to stress out too much. Participation is only 10% for the issues forum, and I feel that Dwayne will not be 'failing' people that have done posting. Instead of a 10 you may receive a 7. Since this course is 400/500 the average has to been in the 7 point range. So as long as you make an effort, he should not be failing people in the participation.

Student 11 ;-)

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (32 of 35), Read 35 times

Conf: Help-WebBoard

From: Student 8

Date: Tuesday, March 26, 2002 08:47 AM

On 3/22/2002 3:41:00 PM, Student 11 wrote:

>Student 12,

>I really don't think that you

>need to stress out too much.

>Participation is only 10% for

>the issues forum, and I feel

>that Dwayne will not be

>'failing' people that have

>done posting. Instead of a 10

>you may receive a 7. Since

>this course is 400/500 the

>average has to been in the 7

>point range. So as long as

>you make an effort, he should

>not be failing people in the

>participation.

>

>Student 11 ;-)

Student 11,

Your comment really put things in perspective for me.

I understand the need for participation marks in a course like this. I think that participation should only be a small portion of ones' grade and the bulk of the grade

should represent the knowledge of the student. Your comment reinforces how EDIT 535 does a good job of doing this.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (25 of 35), Read 54 times

Conf: Help-WebBoard

From: Student 8

Date: Friday, March 22, 2002 05:03 PM

On 3/22/2002 1:05:00 PM, Student 4 wrote:
>You have 182 messages! Isn't
>that fairly good? Or maybe I'm
>way behind too.
> Student 4

On 3/22/2002 1:05:00 PM, Student 4 wrote:
>You have 182 messages! Isn't
>that fairly good? Or maybe I'm
>way behind too.
> Student 4

Student 4,

That total of 182 messages includes every message posted for every on-line course I have taken this year. Since this is my 5th online course and all courses use the web board, my total is very high. **For EDIT 535 I have 47 postings.** Is that comparable with everyone else?

Student 12

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (26 of 35), Read 53 times

Conf: Help-WebBoard

From: Student 7

Date: Saturday, March 23, 2002 03:20 PM

Student 12, I have about 60 messages posted now...I think that's about average. The top people are so far ahead of me there is no point in trying to beat them, although we get marked on quality too, not just quantity. So maybe it's okay, I think 100 by then of the term is reasonable. How about everyone else?

Student 7

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (27 of 35), Read 53 times

Conf: Help-WebBoard

From: Student 11

Date: Saturday, March 23, 2002 04:48 PM

Student 7 I think that your estimates are close.

Student 11 ;-)

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (28 of 35), Read 49 times

Conf: Help-WebBoard

From: Student 9

Date: Sunday, March 24, 2002 08:06 PM

I think that it is very easy to post alot in the issues forum but I find it a bit harder to post in the help sections. It is tough because I dont have alot of questions and the answers to questions that are posted are usually the same ones that I have. I feel sorry for the people who have not posted anything at all. I didnt really know that posting was this important until mid january, when I logged on. Posting will increase quite a bit in these next couple of weeks.

Student 9

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (29 of 35), Read 53 times

Conf: Help-WebBoard

From: Student 7

Date: Sunday, March 24, 2002 09:15 PM

I agree Student 9, I find it way easier to post in the Issues forum. The Help topics are way out of my league, and the one's I can answer are usually already answered by someone else, so I feel there is no point in answering it again, because that is not helpful so it is therefore not a quality posting. Am I wrong? If we reiterate what someone else already said, but in different words, does that help our mark?

Student 7

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (30 of 35), Read 56 times

Conf: Help-WebBoard

From: Student 5

Date: Sunday, March 24, 2002 09:58 PM

On 3/24/2002 9:15:00 PM, Student 7 wrote:

>I agree Student 9, I find it way
>easier to post in the Issues
>forum. The Help topics are way
>out of my league, and the
>one's I can answer are usually
>already answered by someone
>else, so I feel there is no
>point in answering it again,
>because that is not helpful so
>it is therefore not a quality
>posting. Am I wrong? If we
>reiterate what someone else
>already said, but in different
>words, does that help our
>mark?
>
>Student 7

Dwayne did make a comment that makes a lot of sense. You don't necessarily have to help other people. It is wise to ask question because without the questions there would be no answers. If you need help this is the place to ask.

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (31 of 35), Read 43 times

Conf: Help-WebBoard

From: Student 9

Date: Tuesday, March 26, 2002 02:17 AM

If you dont really have that many questions and you are unable to have the opportunity to answer other peoples question before the next person, how are you going to get participation marks in the help forums?

Student 9

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (33 of 35), Read 34 times

Conf: Help-WebBoard

From: Student 18

Date: Wednesday, March 27, 2002 02:11 PM

I sure hope that we don't get penalized that much for not participating lots...It doesn't dictate the amount of work that i put into this course.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: WebBoard Marks??- catching up ??? (34 of 35), Read 33 times

Conf: Help-WebBoard

From: Student 8

Date: Wednesday, March 27, 2002 04:02 PM

Student 18,

Believe me I know how you feel. But we must keep things in perspective, participation marks really aren't worth that much (only 4/10 marks are for participation). Besides what is done is done. Just participate from now on and work hard on the Final project. Although I am disappointed with myself for not participating, I have no one to blame but myself. It is my responsibility to read the

evaluation criteria thoroughly.

I feel I should also reiterate that I think the grading criteria for this course is fair. (From Posting Issues: Participation or Attendance Marks: Monday, March 25, 2002 10:01 PM)

APPENDIX I

WEBBOARD™ PARTICIPATION MARKS CONFERENCE INTERACTION

The following thread was copied from the Winter 2002 EDIT 435 and 535 WebBoard™. Student's first names were changed to Student 1, 2, 3… and last names were deleted to maintain their anonymity.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (1 of 73), Read 242 times

Conf: Help-WebBoard

From: Student 9

Date: Sunday, March 03, 2002 05:18 PM

I was wondering about the 20% that is given for participation. Obviously, the one with most posts will get all 20% but I was wondering how the marks diminish from there. What does the top 10 posters on the web board get? Do they all get 20% (assuming quality is pretty much the same)?

Student 9

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (2 of 73), Read 148 times

Conf: Help-WebBoard

From: Student 5

Date: Sunday, March 03, 2002 06:26 PM

On 3/3/2002 5:18:00 PM, Student 9 wrote:

>I was wondering about the 20%

>that is given for
>participation. Obviously, the
>one with most posts will get
>all 20% but I was wondering
>how the marks diminish from
>there.

Don't be so sure Student 9. Just because somebody is posting like crazy you must take into consideration the quality. Dwayne did make mention that you must support your statements with facts. Without facts a statement can be rendered ineffective because you do not know where the source is coming from in arguing a position.

Opinions are great but they should be justified in some way or another.

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (3 of 73), Read 145 times

Conf: Help-WebBoard

From: Student 13

Date: Monday, March 04, 2002 02:02 AM

But Student 5, isn't there up to a limit on quality and quantity of postings, like we both posted useful and informative stuff, also, we are the top posters, don't we get the marks then....dwayne..?
RY

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (4 of 73), Read 145 times

Conf: Help-WebBoard

From: Dwayne

Date: Monday, March 04, 2002 07:56 AM

On 3/4/2002 2:02:00 AM, Student 13 wrote:

>But Student 5, isn't there up to a

>limit on quality and quantity

>of postings, like we both

>posted useful and informative

>stuff, also, we are the top

>posters, don't we get the

>marks then....dwayne..?

I won't know what your marks will be until the course is over. However, it is possible for more than one student to get top marks on the participation section.

Dwayne

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (5 of 73), Read 138 times

Conf: Help-WebBoard

From: Student 5

Date: Monday, March 04, 2002 01:49 PM

Hi Dwayne,

Do you have a preset criteria for a mark as it relates to the web board, or are we graded according to the curve?

For example: 150 - 160 postings = 9

or

Top ten users with quality postings = 9

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (6 of 73), Read 142 times

Conf: Help-WebBoard

From: Dwayne

Date: Monday, March 04, 2002 02:50 PM

On 3/4/2002 1:49:00 PM, Student 5 wrote:

>Hi Dwayne,

>

>Do you have a preset criteria

>for a mark as it relates to

>the web board, or are we

>graded according to the curve?

>

>For example: 150 - 160

>postings = 9

>

>or

>

>Top ten users with quality

>postings = 9

The marks will be determined at the end of term. I will take a look at the totals and see how the distribution sorts itself out. As I have stated many times before, the

students set the participation levels, I will work with the criteria you have set for yourself and your peers.

Dwayne

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (7 of 73), Read 142 times

Conf: Help-WebBoard

From: Student 13

Date: Monday, March 04, 2002 03:19 PM

So blury, I can't seem to really understand how we are marked for the participation and issues section...????!?!?!?!

RY

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (8 of 73), Read 148 times

Conf: Help-WebBoard

From: Student 2

Date: Monday, March 04, 2002 03:54 PM

I've got to admit to a bit of worry here, Dwayne....

I work full time, and can't spend a lot of time posting on the board, which puts me at a distinct disadvantage. (As it does anyone else in my position.)

I also don't believe in spamming the board, by posting "right on" and "no way" types of messages that have no useful content just to get my numbers up. Does this mean I'll be penalized for lack of participation???!

Is it wrong to live by a paraphrase of Thumper's mother's advice, "If you don't have anything useful to say, don't say anything at all"?

Should I start posting just for the sake of posting, or does quality count too?

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (9 of 73), Read 144 times

Conf: Help-WebBoard

From: Student 14

Date: Tuesday, March 05, 2002 04:51 AM

people should stop asking about marks. People need to get deduction for mentioning the word MARKS. it doesn't help to ask, because everything is decided at the end. TOO BAD if you have no time, drop the course. I go to work full time too and go to school full time as well. i can't believe you people can't spend 5 mins a day here if you tried.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (10 of 73), Read 140 times

Conf: Help-WebBoard

From: Dwayne

Date: Tuesday, March 05, 2002 11:38 AM

On 3/4/2002 3:54:00 PM, Student 2 wrote:
>I've got to admit to a bit of
>worry here, Dwayne....
>
>I work full time, and can't
>spend a lot of time posting on
>the board, which puts me at a

>distinct disadvantage. (As it
>does anyone else in my
>position.)
>
>I also don't believe in
>spamming the board, by posting
>"right on" and "no way" types
>of messages that have no
>useful content just to get my
>numbers up. Does this mean
>I'll be penalized for lack of
>participation???!
>
>Is it wrong to live by a
>paraphrase of Thumper's
>mother's advice, "If you don't
>have anything useful to say,
>don't say anything at all"?
>
>Should I start posting just
>for the sake of posting, or
>does quality count too?

Quality does count but so does the frequency of participation, so you should try to participate regularly.

Dwayne

TOP | **Post** | **Reply** | **Reply/Quote** | **Email Reply** | **Delete** | **Edit** | **Move**
Previous | **Next** | **Previous Topic** | **Next Topic** | **Entire Topic**

Topic: Participation marks (11 of 73), Read 144 times

Conf: Help-WebBoard

From: Student 2

Date: Tuesday, March 05, 2002 12:13 PM

And how much should people lose for flaming others, Student 14?

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (12 of 73), Read 142 times

Conf: Help-WebBoard

From: Student 4

Date: Tuesday, March 05, 2002 03:51 PM

Right on!

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (13 of 73), Read 139 times

Conf: Help-WebBoard

From: Student 14

Date: Wednesday, March 06, 2002 09:43 AM

as much as you get i hope

Student 14

Go ahead, take what you see!

Topic: Participation marks (14 of 73), Read 126 times

Conf: Help-WebBoard

From: Student 14

Date: Thursday, March 07, 2002 06:13 PM

Student 14;

I am glad that you find 5 minutes a day for this chat site, but you should try handling three or four courses that have weekly deadlines and marks for participating in sites like this and working full time. You will find a great deal of your time being spend reading through threads to see if you can profit from it!

I personally would like to know how marks are applied as I would focus my attention to specific areas and criteria!

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (15 of 73), Read 128 times

Conf: Help-WebBoard

From: Student 14

Date: Friday, March 08, 2002 09:57 AM

they are 10% from HELP section
10% from Issues.

Is this what you are asking?

Student 14
Go ahead, take what you see!

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (16 of 73), Read 135 times

Conf: Help-WebBoard

From: Student 2

Date: Friday, March 08, 2002 10:49 AM

Student 15, I think you've managed to put this whole thread in plain language. There doesn't seem to be any fixed division between quality and quantity, which can be panic-causing for some of us.

From what I've been able to glean from past postings on this topic, the prime goal is just how much you post, and the bell-curve distribution of "#-of-postings" will be chopped up into 9 nice little pieces.

chorus of vikings from Monty Python can be heard singing in the far distance, "Spam, spam, spam, spam, loverly spammmm, wonderful spam....."

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (17 of 73), Read 126 times

Conf: Help-WebBoard

From: Student 13

Date: Friday, March 08, 2002 06:21 PM

Man, I am still so worried about not posting quality messages.....hope it turns out good for me

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (18 of 73), Read 130 times

Conf: Help-WebBoard

From: Student 15

Date: Friday, March 08, 2002 08:32 PM

Well if the mark is divided solely on postings, I will keep posting comments in meaningless topics! I personally think the quality of a posting and the information it offers to others should be of some benefit! (even though I'm not sure exactly where I have helped(-:)

Lets pretend that if we logged in once that this is a give me 20%...oh I love living in the fantasy world every once in a while!

Let's not sweat the small stuff! Enjoy the course and let me know if I can help wqith anything!

Cheers
Student 15

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (19 of 73), Read 120 times

Conf: Help-WebBoard

From: Student 6

Date: Sunday, March 10, 2002 10:06 PM

Student 15:

I can understand where you're coming from...I work full-time, commute, coach and have 2 kids. It isn't easy is it?

As for participating on the WebBoard, I check the Board a couple times a week and if I have something meaningful to say I contribute...

However, I'm not about to SPAM the Board and have meaningless interactions with members to compete for marks. Nor am I going to post more than one issue which is ONLY what's required...although the Board does seem like a free-for-all at times.

I don't believe that's what Dwayne intended?

"The Internet provides us an opportunity to discuss and debate what issues we feel necessary, openly and freely."

"...it simply provides all people who have access to the opportunity to participate in a public forum."

Issues Mark:

The issues mark is split into two parts: The first is a mark out of 4 --you get 2 marks for starting a discussion and 1 more mark for each of the two topics you participate in.

Then the final 6 marks are determined by a ranking of the quantity and quality of participation. The two parts are combined for a total mark of 10.

Help Mark:

Help participation marks are based on the quantity and quality of participation.

4 marks is objective.
8 marks quality, subjective?
8 marks quantity, relative?

So what I was wondering is whether or not people think Dwayne will frown upon

those who have raised more Issues than necessary and dominate the Help to the point where it's virtually impossible for others to contribute meaningfully?

Relatively and Subjectively speaking...of course.

Something to think about...

Student 6 :)

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (20 of 73), Read 123 times

Conf: Help-WebBoard

From: Dwayne

Date: Monday, March 11, 2002 09:05 AM

On 3/10/2002 10:06:00 PM, Student 6 >So what I was wondering is
>whether or not people think
>Dwayne will frown upon those
>who have raised more Issues
>than necessary and dominate
>the Help to the point where
>it's virtually impossible for
>others to contribute
>meaningfully?
>
>Relatively and Subjectively
>speaking...of course.

I am completely indifferent to the those students who have raised more issues than necessary and are posting at levels that some (possibly many) may find are

unnecessary. If there are some students who want to work a this level then why should I discourage them (getting people to participate is often a challenge--why should I discourage those who embrace this form of communication). Furthermore, I have stated time and time again in this WebBoard that the students set the standards for participation. You essentially control this public forum. I do monitor the WebBoard closely and if necessary will jump into keep the peace, but the students set the tone, and the standards for discussion--this is your public forum. If you are willing to allow some people to dominate the discussion and raise the participation levels to unrealistic heights then this is your decision.

Experience has show that if I wade into the WebBoard and start chastising students for posting too much, I will effectively shut down discussions. Furthermore, this course is based on a foundation of Inquisitivism and one of the essential aspects of the approach is to create learning environments that are genuine with respect to the way the "real world" works. In the "real world" participants in web-based discussion will generally police themselves and this is what I expect of the students in this course.

I have outlined my standards in the Issues Assignment page and I have responded to a variety of messages related to the participation marks and have repeatedly reminded everyone that you the students set your own standards for the level of participation. The WebBoard (and this entire course) is what you make of it. Unlike many course, you actually have a fair amount of input in creating and controlling your learning environment(you are all adults in this course and do not need to be controlled like children). If you don't like what is happening then you can take steps to change it. How? Perhaps, you could start a discussion to see if others feel that way that you do and if there are others that feel the same way, you could them come up with ways of resolving this issue.

Dwayne

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (21 of 73), Read 126 times

Conf: Help-WebBoard

From: Student 5

Date: Monday, March 11, 2002 11:31 AM

Hi Dwayne,

In your marking guidelines you award marks for quantity and quality of the postings. Does citizenship or netiquette fall under the quality of postings?

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (22 of 73), Read 125 times

Conf: Help-WebBoard

From: Student 13

Date: Monday, March 11, 2002 11:53 AM

Wouldn't that be too much to consider.....I do understand that there must be a level of politeness...but if we are marked on like our manners, then "some" people might have difficulty expressing.....well....yeah.....um....and isn't like netiquette set by this class like dwayne said...as long as it is excepted by everyone....I think that should be acceptable.....=)

RY

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (23 of 73), Read 125 times

Conf: Help-WebBoard

From: Student 2

Date: Monday, March 11, 2002 12:26 PM

If we feel someone is "overposting", yet we're being marked on netiquette, how are we supposed to deal with that?

Certainly, no one should be penalized for participating, but if one or two people have lotsa time to post in every thread, why should those of us with less time be penalized because of those few people who have "set the tone" for the posting level?

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (24 of 73), Read 128 times

Conf: Help-WebBoard

From: Student 5

Date: Monday, March 11, 2002 01:25 PM

Hi Student 2,

I guess when I posted the question I was mainly referring to flaming others.

Student 5

Posts 25-37 went on off a tangent of dealing with flaming and were therefore excluded.

Topic: Participation marks (38 of 73), Read 125 times

Conf: Help-WebBoard

From: Student 6

Date: Wednesday, March 13, 2002 01:59 PM

Student 5:

I think its safe to say that the tone we have set on the WebBoard is appropriate. Like Dwayne stated...he'd step in only if things got carried away. He hasn't...

We've been allowed to state our opinions and make contributions and those that step out of line...face critics.

I think one has to be careful too...since we do not have the direct social contact and cannot see body language it's kind of difficult to "gauge" a person a times.

Especially if a person feels very strongly about an issue.

However, I've stated my position on the WebBoard before several times, some members of the group are getting a little carried away...this creates a vacuum effect upwards...it's obvious.

YOU DO NOT HAVE TO COMMENT ON EVERY SINGLE ISSUE NOR HELP EVERYONE TO EARN YOUR PARTICIPATION MARKS!

STOP DOMINATING THE BOARD!

Hey...does anyone hear that sucking noise?

Student 6 :)

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (39 of 73), Read 126 times

Conf: Help-WebBoard

From: Student 16

Date: Wednesday, March 13, 2002 02:16 PM

I think the Web Board is designing for us to get help and to communicate with our classmates not for marks!!

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (40 of 73), Read 99 times

Conf: Help-WebBoard

From: Student 8

Date: Wednesday, March 13, 2002 09:53 PM

Well guess it is time to wade in here. Have taken several classes where participation in some kind of web board is part of the course. The discussion I have been following in this thread is a common one in those courses. How do we get marked .. quantity or quality? is always and issue. If quantity is not important then why do we have the "Top 10 Posters"? My experience has been to post where I feel I can contribute and to lurk in the other areas. These things can be very intimidating as some people go nuts posting and say very little. Others post quality and contribute. Sometimes they are even the same people.

My first course of this nature had a web board, but we also met for a class once a month. The top poster never spoke a word in class (interesting eh!). The most outspoken person in class participated very little on the web board. We have to find the level that works for us and do it.

I find that on this board the issues area has a lot of topics that I would never contribute to and the few topics I have started do not seem to interest the majority of the class. I understand the reasons for this as we are a very diverse group. A few of use have taught for twenty years plus and most have not yet taught.

Good luck to you all and more importantly I hope we have all learned something from this course.

Student 8

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (41 of 73), Read 99 times

Conf: Help-WebBoard

From: Student 5

Date: Wednesday, March 13, 2002 10:01 PM

Sorry that you feel this way Student 6. However, I feel that I have taken a role in helping others where some people have not stepped up or shown up. This may be the teacher in me coming out but I do not think that there is anything wrong with this. I honestly don't believe that I am spamming the board with junk. I feel that my messages are posted with the objective of helping others and my issues are usually well though out with supporting examples.

Like Dwayne said it is up the the students to determine the level of participation.

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (42 of 73), Read 98 times

Conf: Help-WebBoard

From: Student 11

Date: Wednesday, March 13, 2002 11:25 PM

Honestly,

I am getting really tired of this discussion. Every single one of my classes this term has a participation mark. And this is the only class that we have had a continuing discussion about it. I really couldn't care less anymore.

I feel that if you make an effort to help others you will get a good mark from Dwayne and the ten lousy marks this is worth is not worth so much worry.

Student 11

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (43 of 73), Read 96 times

Conf: Help-WebBoard

From: Student 2

Date: Thursday, March 14, 2002 11:03 AM

On the other hand, this topic has probably given a significant boost to the participation level of a number of people all by itself.

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (44 of 73), Read 94 times

Conf: Help-WebBoard

From: Student 17

Date: Thursday, March 14, 2002 01:54 PM

Our analysis of the marking system should be analyzed.

:P

Student 17

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (45 of 73), Read 90 times

Conf: Help-WebBoard

From: Student 9

Date: Friday, March 15, 2002 08:34 AM

I think that it should be less of a competition between students who post. But if you notice the people who are asking and commenting on marks and the amount to participate are the people who have like a 100 posts or more already. I think that we should not worry too much about his mark. Because it should be the people who still only have like on post that should be worried. I think this board should be used to help facilitate our learning experience and not use it to argue with others.

Student 9

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (46 of 73), Read 88 times

Conf: Help-WebBoard

From: Francesco

Date: Sunday, March 17, 2002 01:49 AM

Hey guys,

I guess it would have been better if there was a set quantity of responses for each grade, but there isn't. So if you got the time, why wouldn't you try to get the best possible mark. This Webboard is about two things:

1. Getting answers and giving answers
2. Chatting about interests and current events

Just cause others have the time to post and increase their postings and you don't, there's no need to get mad. Instead of complaining, try to find things that are useful to post.

Frank

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (47 of 73), Read 76 times

Conf: Help-WebBoard

From: Student 1

Date: Monday, March 18, 2002 11:26 PM

I think everyone should not worry so much. The Boards here for us to talk mostly. The marks will be there for all of us who check regularly and post regularly too. If you have 50 messages that's plenty to do well and you'll have good quality in there, after that the rest is just icing, to feel more comfortable with the course. That's the way I feel about it but then again I'm not handing out marks...Did I mention you're looking great again today Dwayne?!

Ciao

Student 1

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (48 of 73), Read 70 times

Conf: Help-WebBoard

From: Student 6

Date: Tuesday, March 19, 2002 03:31 PM

Student 5,

The guidelines clearly state in BOLD letters to post one issue and contribute in at least two others...

I'm not against anyone assisting others and contributing, nor stating their opinions

openly...I enjoy exchanging ideas and opinions as much as you do...and I sometimes contribute more than necessary because of the competitive tone of this WebBoard.

It's this competitive tone I'm against.

One of the top 10 Netiquette rules does state very clearly to Respect other people's time.

Competing for the top 10 is contrary to this
rule of courtesy and is contrary to the purpose of a discussion group in my opinion.

Anyways...it isn't the end of the world.

KEEP POSTING!

Student 6 :)

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (49 of 73), Read 72 times

Conf: Help-WebBoard

From: Student 5

Date: Tuesday, March 19, 2002 07:30 PM

Student 6,

I feel that I am respecting others time by at the very minimum posting quality messages. As well, Dwayne's guidelines were a minimum in suggesting that we initiate at least one discussion and participate in two. Quality and quantity do count as Dwayne as stated numerous times. I don't think it is appropriate that you are discouraging me and the other top 10 posters (as this is not a competition for which I

feel you are threatened by).

If you don't feel like reading my messages please feel free to click the "mark read" button" or ignore my postings specifically.

Otherwise I cannot help you.

Sorry!

Student 5

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move
Previous | Next | Previous Topic | Next Topic | Entire Topic

Topic: Participation marks (50 of 73), Read 69 times

Conf: Help-WebBoard

From: Student 6

Date: Wednesday, March 20, 2002 12:44 PM

Student 5:

If I was discouraging you or any other TOP 10, I wouldn't be exchanging my views with you on this topic now would I?

In fact, judging from the participation on this topic alone you've benefited.

Nevertheless, I think we've explored this issue enough...it's time to move on... don't you?

Student 6 :)

TOP | Post | Reply | Reply/Quote | Email Reply | Delete | Edit | Move

Previous | **Next** | **Previous Topic** | **Next Topic** | **Entire Topic**

Topic: Participation marks (51 of 73), Read 74 times

Conf: Help-WebBoard

From: Student 4

Date: Wednesday, March 20, 2002 01:33 PM

Can't we pleeease let this thread die and just let people post as much or little as they want?

Free Tibet!! Free Tibet!! Free Tibet!!

Student 4

As is often the case when a topic has been very thoroughly discussed a student will post a lighthearted message to change the tone. The remaining 22 posts increased in lightheartedness (ranged into silliness) and were there deleted.

APPENDIX J:

DEFINITION OF TERMS

Cognitive Flexibility Theory is a conceptual model for designing learning environments that is based on cognitive learning theory. Its intention is to facilitate the acquisition of advanced knowledge to serve as the basis for expertise in complex and ill-structured knowledge domains (Jonassen, Dyer, Peters, Robinson, Harvey, King and Loughner, 1997)

Compression (Zip, Suffit) is storing data in a format that requires less space than usual. Data compression is particularly useful in communications because it enables devices to transmit the same amount of data in fewer bits. There are a variety of data compression techniques, but only a few have been standardized. The CCITT has defined a standard data compression technique for transmitting faxes (Group 3 standard) and a compression standard for data communications through modems (CCITT V.42bis). In addition, there are file compression formats, such as ARC and ZIP. Data compression is also widely used in backup utilities, spreadsheet applications, and database management systems. Certain types of data, such as bit-mapped graphics, can be compressed to a small fraction of their normal size (Jupitermedia, 2003).

Constructivist conceptions of learning assume that knowledge is individually constructed and socially co-constructed by learners based on their interactions with the world. The meaning that learners construct depends on their needs, beliefs and prior knowledge (Jonassen, 1997).

Cyberspace was originated by author William Gibson in his novel Neuromancer (1984) the word Cyberspace is currently used to describe the whole range of

information resources available through computer networks (Enzer, 2003).

FTP is short for File Transfer Protocol and is a common method of moving files between two Internet sites. FTP is a special way to login to another Internet site for the purposes of retrieving and/or sending files. There are many Internet sites that have established publicly accessible repositories of material that can be obtained using FTP, by logging in using the account name anonymous, thus these sites are called anonymous ftp servers (Enzer, 2003).

HTML is short for HyperText Markup Language, the authoring language used to create documents on the World Wide Web. HTML is similar to SGML, although it is not a strict subset. HTML defines the structure and layout of a Web document by using a variety of tags and attributes. The correct structure for an HTML document starts with (enter here what document is about) and ends with . All the information you'd like to include in your Web page fits in between the and tags. There are hundreds of other tags used to format and layout the information in a Web page. For instance, is used to make paragraphs and … is used to italicize fonts. Tags are also used to specify hypertext links. These allow Web developers to direct users to other Web pages with only a click of the mouse on either an image or word(s) (Jupitermedia, 2003).

Index in database design, is a list of keys (or keywords), each of which identifies a unique record. Indices make it faster to find specific records and to sort records by the index field -- that is, the field used to identify each record. On the WWW, Yahoo would be an example of an index (Jupitermedia, 2003).

Inquisitivism is a descriptive approach to designing effective instruction. One of the key ideas in the inquisitivist approach is the removal of the paralyzing fear that many adults have with learning technology. For example, children excel at the computer and other technologies because they have little fear of technology. At a very young

age, children begin to learn how to use technology by trial and error. In the beginning, they make many "errors" but, since adults protect them, these errors don't usually hurt, so they keep trying new things. As they begin to build a conceptual model of how the world works, they begin to make less errors, and they become more conservative, and may not try new things if there is a high possibility of making an error, Inquisitivism attempts to encourage learners to try new things by reducing the "hurt level" and encouraging the "HHHMMM??? What does this button do?" approach to learning Adults can have almost the same level of success with technological learning if they allow themselves to be inquisitive. (Harapnuik, 1998)

Instant Messaging is a type of communications service that enables you to create a private chat room with another individual. Typically, the instant messaging system alerts you whenever somebody on your private list is online. You can then initiate a chat session with that particular individual (Jupitermedia, 2003).

Internet (Upper case I) is the vast collection of inter-connected networks that all use the TCP/IP protocols and that evolved from the ARPANET of the late 60's and early 70's (Enzer, 2003).

Listserv is an automatic mailing list server developed by Eric Thomas for BITNET in 1986. When e-mail is addressed to a LISTSERV mailing list, it is automatically broadcast to everyone on the list. The result is similar to a newsgroup or forum, except that the messages are transmitted as e-mail and are therefore available only to individuals on the list (Jupitermedia, 2003).

Majordomo is a free mailing list server that runs under UNIX. When e-mail is addressed to a Majordomo mailing list, it is automatically broadcast to everyone on the list. The result is similar to a newsgroup or forum, except that the messages are transmitted as e-mail and are therefore available only to individuals on the list (Jupitermedia, 2003).

Minimalism is a descriptive approach to designing effective instruction. "One of the key ideas in the minimalist approach is to present the smallest possible obstacle to the learners' efforts, to accommodate, even exploit, the learning strategies that cause problems for learners using systematic instructional materials." (Carroll, 1990)

MOO (Mud, Object Oriented) is one of several kinds of multi-user role-playing environments (Enzer, 2003).

MUD (Multi-User Dungeon or Dimension) is (usually text-based) multi-user simulation environment. Some are purely for fun and flirting, others are used for serious software development, or education purposes and all that lies in between. A significant feature of most MUDs is that users can create things that stay after they leave and which other users can interact within their absence, thus allowing a world to be built gradually and collectively (Enzer, 2003).

MUSH is short for Multi-User Shared Hallucination, a text-based MUD system. There are many MUSH worlds that have been evolving for years (Jupitermedia, 2003).

Search engine is a program that searches documents for specified keywords and returns a list of the documents where the keywords were found. Although search engine is really a general class of programs, the term is often used to specifically describe systems like Alta Vista and Excite that enable users to search for documents on the World Wide Web and USENET newsgroups. Typically, a search engine works by sending out a spider to fetch as many documents as possible. Another program, called an indexer, then reads these documents and creates an index based on the words contained in each document. Each search engine uses a proprietary algorithm to create its indices such that, ideally, only meaningful results are returned for each query (Jupitermedia, 2003).

Telnet is a terminal emulation program for TCP/IP networks such as the Internet. The Telnet program runs on your computer and connects your PC to a server on the network. You can then enter commands through the Telnet program and they will be executed as if you were entering them directly on the server console. This enables you to control the server and communicate with other servers on the network. To start a Telnet session, you must log in to a server by entering a valid username and password. Telnet is a common way to remotely control Web servers (Jupitermedia, 2003).

URL (Uniform Resource Locator) is the standard way to give the address of any resource on the Internet that is part of the World Wide Web (WWW). A URL looks like this:

http://www.matisse.net/seminars.html
or telnet://well.sf.ca.us
or news:new.newusers.questions etc. (Enzer, 2003).

Usenet is worldwide bulletin board system that can be accessed through the Internet or through many online services. The USENET contains more than 14,000 forums, called newsgroups, that cover every imaginable interest group. It is used daily by millions of people around the world (Jupitermedia, 2003).

WWW (World Wide Web or Web) has two meanings – "First, loosely used: the whole constellation of resources that can be accessed using Gopher, FTP, HTTP, telnet, USENET, WAIS and some other tools. Second, the universe of hypertext servers (HTTP servers) which are the servers that allow text, graphics, sound files, etc. to be mixed together "(Enzer, 2003).

WWW Browser is a client program (software) that is used to look at various kinds of Internet resources (Enzer, 2003).

Web-based conferencing is also known as to as Computer Mediated Communications (CMC) refers to human communication via computers--including computer network communication on the Internet and the World Wide Web. People interested in CMC study a range of phenomena--from the dynamics of group communication in Usenet news articles to how people use hypertext to shape meaning (December, 2003)

Web-based Instruction (WBI) is an innovative approach for delivering instruction to a remote audience, using the Web as the medium (Khan, 1997).